A.R.M. LOXAHATCHEE NATIONAL WILDLIFE REFUGE

ENHANCED WATER QUALITY PROGRAM

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ACRONYMS AND ABBREVIATIONS

ACME Special Drainage District, Village of Wellington
acre-ft acre-feet (volume reported as one acre in area by one foot in depth)
cfs cubic feet per second
Cl chloride
cm centimeter
DBHYDRO SFWMD's web portal for water quality data
DCS depth from water surface to consolidated substrate
DOI US Department of Interior
EVPA Federal Consent Decree compliance sampling network for Refuge
ft feet
FWM flow-weighted mean
km kilometer
L liter
LOXA Refuge's expanded water quality monitoring network
m meter
mg milligram
NGVD National Geodetic Vertical Datum
NO_x total concentration as nitrogen of oxides of nitrogen, $NO_2 + NO_3$
Refuge A.R.M. Loxahatchee National Wildlife Refuge
s second
SFWMD South Florida Water Management District
SO_4 sulfate
STA Stormwater Treatment Area
Tdepth depth of clear water column
TN total nitrogen
TP total phosphorus
µg microgram
µS cm^{-1} microSiemens per centimeter (measure of conductivity)
USACE U.S. Army Corps of Engineers
USFWS U.S. Fish and Wildlife Service
USGS U.S. Geological Survey
WCA Water Conservation Area

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EXECUTIVE SUMMARY

Congress appropriated funds to the U.S. Fish and Wildlife Service in 2004 which funded an enhanced water quality monitoring network and hydrodynamic and water quality models to improve the scientific understanding of water quality in the Arthur R. Marshall Loxahatchee National Wildlife Refuge[1] (Refuge). The network and models provide information that is used in management decisions to better protect Refuge resources. The enhanced water quality monitoring network complements the compliance network monitored as a part of the 1992 Federal Consent Decree (Case No. 88-1886-CIV-MORENO) by characterizing the water quality of a larger Refuge area, particularly the fringe area potentially impacted by canal water intrusions. Monthly grab samples have been collected at 37 to 39 stations located in the marsh and canal since June 2004. The number of grab sample stations has reduced to 37 because three stations located near the canal were overrun with cattail making them inaccessible. Additionally, continuous measurements of conductivity have been collected along seven transects, four of which extend from surface water discharge points in the canal into the interior. This report is the twelfth annual report, with analyses focused on January through December 2015, and with comparisons made to the preceding years (2004 through 2014).

Water quality data (particularly total phosphorus) and analyses of canal water intrusion into the Refuge marsh presented in this report document continued intrusion of rim canal water into the Refuge interior, adding to a growing information base about canal water impacts to the Refuge. Intrusion of nutrient-rich and high conductivity water from the canal network surrounding the Refuge has been shown to negatively impact Refuge flora and fauna. Important insights gained from 2015 canal water intrusion analyses include:

- Canal water intruded into the marsh up to at least 3.9 km late in the year after several weeks of rainfall and inflow driven high stage.
- Rainfall total in 2015 for the Refuge and contributing basins was lower than the annual historic average since 1963.
- Canal water intrusion into the marsh was greatest coming out of the dry season (November through April) across the Refuge. Elevated inflows unmatched by outflows, coupled with canal stage greater than marsh stage beginning in September promoted canal water intrusion into the marsh from October through December across the Refuge.

Analyses of these data continue to support previously suggested management practices that have the potential to minimize intrusion. This year, the Refuge achieved the high stage performance measure (PM) which calls for water stage above 16.4 ft for more than 4 weeks in 4 of 5 years. This year makes four consecutive years in the last five that the PM was met. The PM is designed to provide ecological conditions that promote replenishment of the fish prey-

[1] Public Law 108-108; see House Report No. 108-195, p. 39-41 (2004)

based populations following low water years and establishment of hydrologic conditions conducive for promoting water stage recessions that concentrate the fish prey-based population during wading bird fledging season. A few recommendations with regards to reducing canal water intrusion are summarized as balancing inflow and outflow volumes, reducing the duration of inflows, and reducing inflow rates when the canal stage is lower than the marsh stage.

Based on the surface water conductivity data, the Refuge was classified into four geographic zones: (1) Canal Zone; (2) Perimeter Zone, located from the canal to 2.5 km (1.6 miles) into the marsh; (3) Transition Zone, located from 2.5 km (1.6 miles) to 4.5 km (2.8 miles) into the marsh; and (4) Interior Zone, greater than 4.5 km (2.8 miles) into the marsh. Overall, water quality conditions in the Perimeter continue to be different from, and more impacted than, the Interior Zone. Cattail expansion in the Refuge marsh, negative impacts to periphyton and *Xyris* spp. in response to nutrient and mineral enrichment, and displacement of sawgrass in the canal water-exposed areas of the marsh are a few examples of marsh impacts.

This report continues to document that water movement between the canals and the marsh is influenced by rainfall, structure-controlled water inflow and outflow into and from the perimeter canal, the difference between canal and marsh stages, and marsh elevation. When combined with our understanding of canal water intrusion's influence on the marsh, these data continue to suggest that high-nutrient water is having a negative impact on the Refuge marsh (e.g., enriched soil TP, displacement of sawgrass by cattails, loss of *Xyris* spp., etc.).

ANNUAL PROGRAM SUMMARY

The objective of this section is to provide a general descriptive summary of environmental conditions, canal water intrusion into the Refuge marsh (movement of water from the perimeter canal into the marsh interior), and associated water quality in the Refuge from January through December 2014 following approaches presented in previous annual reports (USFWS 2007a, b; USFWS 2009; USFWS 2010a, b; USFWS 2012a, b, USFWS 2013, USFWS 2014, USFWS 2015). Further, we compare results, particularly total phosphorus (TP), in 2014 to results presented in previous water quality reports covering the period from January 2004 through December 2013 (Harwell et al. 2005; USFWS 2007a, b; USFWS 2009; USFWS 2010a, b, USFWS 2012a, b, USFWS 2013, USFWS 2014, USFWS 2015). Thus, this section serves as an update to the 2014 annual report (USFWS 2015) and briefly characterizes environmental conditions (e.g., rainfall, canal flows, marsh and canal stages, and water quality) associated with events of canal water intrusion into the marsh and water quality conditions during 2015.

Background

Prior to June 2004, water quality in the Refuge interior was monitored primarily using the 1992 Federal Consent Decree (Case No. 88-1886-CIV-MORENO) compliance network (EVPA). These 14 stations (**Figure 1**), monitored since 1978, characterize the central region of the interior marsh, leaving a relatively large region uncharacterized, predominantly in the outer, impacted fringe of the wetland (Harwell et al. 2005; USFWS 2007a, b; USFWS 2009; USFWS 2010a, b, USFWS 2012a, b, USFWS 2013, USFWS 2014, USFWS 2015). In June 2004, the Refuge initiated an enhanced water quality monitoring network (LOXA) intended to improve the scientific understanding of water movement in and out of the Refuge marsh, water quality in the marsh, and to provide information that can be incorporated into water management decisions to better protect Refuge resources (Brandt et al. 2004). The enhanced monthly sampling focuses on areas near surface water discharge stations in areas uncharacterized by the EVPA network (**Figure 1**).

Water delivered to the Refuge originates as direct rainfall and canal water discharges from the surrounding basins. Stormwater treatment areas (STA) 1W and 1E treat the majority of water delivered to the Refuge via canals. Canal discharges are driven by rainfall in the surrounding basins, with a large volume delivered to the Refuge from the L-8 and S-5A basin (Burns and McDonnell Engineering Co, Inc. 2005). The L-8 basin discharges are generally a mixture of water from Lake Okeechobee and the S-5A and C-51 basins (Gary Goforth, Inc. 2008). The STA-1E water control plan indicates that during this interim period (through 2015), water discharges to tide (east coast – Lake Worth Lagoon) should approach 150,000 acre-ft, while the remainder of the water should be treated and distributed throughout the Everglades Protection Area (Refuge south to Florida Bay). Stormwater Treatment Areas 1W (180,000 acre-ft annually capacity) and 1E (165,000 acre-ft annually capacity) are to treat some of this water (Gary Goforth, Inc. 2008).

Water levels in the Refuge are managed by U.S. Army Corps of Engineers (USACE) based on the 1995 Water Regulation Schedule (USFWS 2000; USFWS 2007a, b; **Figure 2**). Inflows to the Refuge from the STAs or as bypass around the STAs are controlled by the South Florida Water Management District (SFWMD), while discharges from the Refuge are controlled by USACE. Since 2009, staff from the Refuge has held weekly calls with USACE to provide input on timing and volumes of discharges from the Refuge.

Methods

Environmental Conditions. Rainfall, flow, stage, and additional water quality data were downloaded from the South Florida Water Management District (SFWMD) data web portal, DBHYDRO and data were current as of June 11, 2015 (http://my.sfwmd.gov/portal/page?_pageid=2235,4688582&_dad=portal&_schema=PORTAL). All stage data presented in this report are relative to the NGVD 1929 datum. Data from the USGS 1-7 stage gage (**Figure 1**) were used as estimates of marsh stage values; stage data from the 1-8C (**Figure 1**), adjusted down by 0.091 ft, were used to represent canal stage. These data, without the adjustment, were also used to assess the number of days the canal and marsh stages were greater than 16.4 ft in any year, with 21 to 28 days being optimal for providing desired stages going into the dry season for proper recession and adequate water for hatchling foraging. Refuge inflow and outflow were aggregated as the total daily average flow. Inflow records for ACME-1, ACME-2, G-310, G-251, S-362, G-300, and G-301 were used for daily average inflow into the canals; outflow records at G-300, G-301, G-94A, G-94B, G-94C, S-10A, S-10C, S-10D, and S-39 were used for daily average outflow out of the canals (**Figure 1**). Data from G-338 also were considered, but the discharges were sparse and not included in these analyses. Daily rainfall data were averaged from the LOXWS, S-6, S-39, and S-5A weather stations to represent Refuge rainfall (**Figure 1**). Rainfall for the C-51 is represented by S-5A and WPB AIRP, and Pahokee1 and Pahokee2 represent rainfall for the S5A basins. Flows to the east of the Refuge from the S-5A, C-51, and L-8 basins are represented by pump structure S-155A.

Intrusion Monitoring. Conductivity acts as a conservative tracer of canal water; there are no biological or chemical processes in the surface water that significantly alter conductivity. Thus, these data can be used to track canal water intrusion into the marsh, which ultimately can be examined in relationship to water management operations. We determined the spatial and temporal extent of high conductivity canal water intrusion into the Refuge under different hydrologic conditions with emphasis on six of the seven Refuge conductivity transects (**Figure 1**), where temperature-compensated conductivity is collected hourly using conductivity data loggers. Also, we related changes in the extent of intrusion to water management activities affecting canal stages and flows into the Refuge, and determined the influence of natural meteorological events and hydrologic mechanisms on intrusion of high conductivity canal water.

We used the six conductivity transects to track water movement between the canal and the first six kilometers of the marsh (**Figure 1**). Two transects (STA-1E and STA-1W) were established near the outflow of STA-1W and STA-1E discharge structures. Two of the remaining

transects (ACME-2 and Southeast) were established on the east side of the Refuge south of the STA-1E discharge structure. We established the Southeast (SE) transect late in July 2007 to capture canal water intrusion in areas not previously characterized. The final two transects (S-6 and Extreme Southwest) were established on the west side of the Refuge south of the STA-1W discharge structure. The Extreme Southwest (ESW) transect also was established late in July 2007 to capture canal water intrusion signals in areas previously not characterized.

Seventy-five percent of canal monthly conductivity values were greater than 715 $\mu S\ cm^{-1}$ and the maximum was 1,279 $\mu S\ cm^{-1}$. Monthly Interior Zone conductivity levels remained below 288 $\mu S\ cm^{-1}$ through 2015. Given this difference in conductivity between the canal and the interior marsh, we use two conductivity levels, 350 and 500 $\mu S\ cm^{-1}$, to help identify the distance into the interior marsh that canal water penetrated. Tracking was done using isopleths of conductivity generated from the hourly conductivity data. Isopleths are lines connecting points of equal value for a given metric. Elevation contours on a topographic map are examples of isopleths.

The two isopleths (350 and 500 $\mu S\ cm^{-1}$) were chosen to sufficiently cover the conductivity gradient observed from the canal into the marsh. Further, laboratory and field studies have shown that high conductivity waters (>300 $\mu S\ cm^{-1}$) have adverse impacts on the ecosystem community structure (e.g., reduced growth rate of *Xyris* spp. (McCormick and Crawford 2006), shifts from sawgrass to cattail communities (Richardson 2010), altered periphyton community structure (Sklar et al. 2005).

Marsh Total Phosphorus. As in past years, monthly water quality samples were collected from the EVPA and LOXA monitoring networks (**Figure 1**). The EVPA network consists of 14 interior marsh stations collected cooperatively with the SFWMD and Refuge staff. Refuge staff solely-collect water samples from the 37 stations (five in the canal and 32 in the marsh) in the LOXA network. The number of grab sample stations has reduced from 39 to 37 since the program's inception because two stations located near the canal were overrun with cattail, making them inaccessible for water quality sampling. Samples for both networks generally are analyzed for more than 20 water quality parameters. Sample collection is confounded by water depth and sample station accessibility. When clear water depths are between 10 and 20 cm (3.9 and 7.9 inches), only partial samples are collected and analyzed for 6 of the 29 water quality parameters, including: TP, chloride, sulfate, temperature, depth, and specific conductance. When the clear water depths are below 10 cm (3.9 inches), no samples are collected and no data are recorded. This report only presents TP data. **Appendix A** presents summary statistics for all water quality parameters measured in the LOXA network.

Water Quality Zones. The Refuge interior was classified into several geographic zones based upon conductivity data variability and changes in median conductivity as a function of distance from the perimeter canal as presented in USFWS 2007a, b; 2009; 2010a, b, USFWS 2012a, b, USFWS 2013, USFWS 2014, USFWS 2015. For the analyses presented here, the following zones were identified:

- Canal: stations located in the canal
- Perimeter: stations located from the canal to 2.5 km (1.6 miles) into the marsh
- Transition: stations located from 2.5 km to 4.5 km (1.6 to 2.8 miles) into the marsh
- Interior: stations located greater than 4.5 km (2.8 miles) into the marsh

Water quality stations associated with each zone are presented in Appendix B – **Table B-1**.

Results

Environmental Conditions: S-5A and C-51 Basins. The 2015 S-5A (522,360 acre-ft) and C-51 (504,360 acre-ft) basin rainfall volumes were lower than their historic averages since 1963 (678,554 and 613,699 acre-ft, respectively – **Figure 3a**). Consistent with previous years, wet season rainfall for S-5A (291,240 acre-ft) and C-51 (292,800 acre-ft) was greater than dry season (231,120 and 211,560 acre-ft, respectively – **Figure 3b**) rainfall. Rainfall in the S-5A and C-51 basins is a primary driver of inflows to the Refuge.

Flows through the S-155A structure and inflows to STA-1E operate in concert. Discharges to the east coast via S-155A have a guideline limit of 150,000 acre-ft yr^{-1}. In 2015, the volume of water discharged through S-155A was approximately 102,661 acre-ft, 37% lower than expected during normal operations. Inflow to STA-1E (110,161 acre-ft - **Figure 5a**) was lower than the treatment target of 165,000 acre-ft yr^{-1} (Gary Goforth, Inc. 2008) in 2015 for the seventh year in a row. Inflow to STA-1W (151,005 acre-ft – **Figure 5b**) was lower than the treatment target of 180,000 acre-ft yr^{-1} for the first time since 2012. Inflow volumes to STA-1E and STA-1W were substantially lower than maximum annual treatment capacities of 304,993 and 329,169 acre-ft yr^{-1}, respectively (Germain 2013).

Environmental Conditions and Canal Water Intrusion: Refuge. Rainfall on the Refuge in 2015 was approximately 514,246 acre-ft (**Figure 6a**), with dry and wet season rainfall contributing 38% and 62% of total rainfall (**Figure 6b**). Rainfall on the Refuge was lower than historic rainfall average since 1963 (623,873 acre-ft). Refuge canal total annual inflow in 2015 (211,993 acre-ft) was 6% lower than annual average (297,434 acre-ft) since 2004 and 2015 outflow (95,337 acre-ft) was 45% lower than annual average (323,403 acre-ft; **Figure 6c**). In 2015, dry season (55,413 acre-ft) inflow was lower than average dry season inflow (63,477 acre-ft) since 2004, while wet season (156,579 acre-ft) inflow was lower than annual wet season inflows (224,063 acre-ft). In 2015, dry season (76,608 acre-ft) outflow was 25% lower than the annual dry season average outflow (98,225 acre-ft) since to 2004, while wet season outflow in 2015 (18,730 acre-ft) was 163% lower than annual wet season average outflow (185,370 acre-ft). Mean canal (16.27 ft) and marsh (16.36 ft) stage in 2015 were higher than historic annual averages (15.77 and 16.16 ft, respectively) since 2004 (Table 3).

Daily inflow to the Refuge peaked several times throughout 2015 (**Figure 7a and 8a)**. Continuing from December 2014, water stages in the canal and marsh declined consistent with the water regulation schedule (**Figure 2**) through May 2015, when stages dropped down to 14.38 ft in the canal and 15.6 ft in the marsh. Over this period, inflows and outflows remained

fairly low with 75% of the inflow and outflow below 70 and 150 cfs, respectively. After the wet season rains began in May, canal and marsh stages began to ascend and by September stages began ascending consistent with the water regulation schedule rate. Inflow rates remained fairly low (< 400 cfs) from May through July, but from late August through September flow rates increased to between 1,000 and 2,500 cfs. Peak inflows occurred in late September with maximum flow rates of 3,384 cfs. These elevated inflows resulted in the canal stage increasing above the marsh stage. After a few more weeks of continued inflows, unmatched by outflow, canal water intrusion increased considerably across the Refuge (**Figure 7c-e; Figure 8c-e**). In late October, intrusion reached 2.4 km along the STA-1W transect, while along the S-6 and STA-1E transects, intrusion increased to 3.5 and 3.9 km into the marsh, respectively. Although data were lost for most of November, canal water intrusion was clearly receding through December.

Canal and marsh stages increased to or above 17 ft by late October and remained near this level or higher through December, in response to elevated levels of rain resulting from El Niño. This condition resulted in the Refuge achieving the high stage performance measure (PM) this year (**Figure 9**). The high stage PM requires Refuge stage to increase above 16.4 ft for more than 4 weeks in a year 4 of 5 years. This year makes the fourth consecutive year that the PM was met in the last five year.

Total Phosphorus and Intrusion Dynamics. Monthly flow-weighted mean TP concentrations discharged to the Refuge from STA-1E and STA-1W in 2015 ranged from 10 to 108 ppb, while canal concentration ranged from 14 to 31 ppb (**Figure 10a**). Canal TP concentrations peaked (31 ppb) in August, when inflows and stages began rising out of the dry season. Interestingly, STA-1W peak discharge occurred in May with a value of 108 ppb, but that was not observed in the canal, likely because discharge from the STA was about 150 acre-ft (2.6 cfs). Perimeter Zone TP concentrations ranged from 7 to 21 ppb through 2015. Peak TP concentration in the Perimeter Zone occurred in September after inflows to the Refuge and stage increase coming out of the dry season (**Figure 10b**). Transition Zone TP concentrations ranged between 6 to 19 ppb, with the peak in July when water samples were collected at only one station in this zone. Interior Zone TP concentrations ranged between 7 and 16 ppb during 2015, with the peak concentration in June when only two stations were sampled for water quality.

There were no excursions and thus no exceedance of the Long-Term Level in the Refuge this year.

Discussion

Since the initiation of the enhanced water quality monitoring program, the 2015 environmental conditions for the Refuge were fairly normal, with a slight deviation from the norm in response to El Niño rainfall in late November and through December. These conditions led to the Refuge meeting the high stage PM target established to promote ecological benefits for the fourth year

in a row of the last five years, suggesting the Refuge has meet the longer-term performance measure to support ecosystem function.

Rehydration of the marsh and related inflows to the Refuge in August resulted in intrusion into the marsh in September. This intrusion event followed a rapid stage rise, in which the canal stage increased to the level of the marsh stage and both continued to rise through the remainder of the year. Similar to previous years on record, the intrusion event was driven mostly by high and continuous inflow rates and antecedent rainfall. This pattern of intrusion lasted into December.

Previous annual reports for the Refuge (Harwell et al. 2005; USFWS 2007a, b; USFWS 2009; USFWS 2010a, b, USFWS 2012a, b, USFWS 2013, USFWS 2014, USFWS 2015) have presented water management suggestions, including dry-down frequencies and minimization of canal water intrusion. Some of those suggestions focused on controlling inflows and outflows to minimize canal water intrusion into the marsh. In the 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, and 2014 annual reports, we suggested that if canal water inflows were necessary, the inflow rate should be below 200 cfs and for a short duration (< five days). Alternatively, if high inflows were necessary and canal and marsh stages were greater than the marsh sediment elevation, then outflows should be timed to inflows and be greater than inflows. The recommended timing, volume, or duration of outflows with respect to inflows was not extensively observed in 2015. Failure to apply this guidance in 2015 is linked to maintaining canal water intrusion into the marsh into December. Because of findings in this and previous years, we continue to support the water management recommendation to reduce canal water intrusion as characterized here and in previous reports (USFWS 2007a, b; USFWS 2009; USFWS 2010a, b; USFWS 2012a, b, USFWS 2013, USFWS 2014, USFWS 2015). Some of these management recommendations include (**Table 2**):

- Refuge inflows should be short duration (≤ 5 days) pulses of < 200 cfs (6 $m^3 s^{-1}$) when absolute canal/marsh stage difference is < 0.2 ft (< 0.1 m) and interior water depths are < 0.5 ft (< 0.2 m).

- Refuge inflow rates can be moderate (200 to 400 cfs; 6 to 11 $m^3 s^{-1}$) for short durations if marsh stage is > 0.6 ft (> 0.2 m) higher than canal stage and waters depths are < 0.3 ft (< 0.1 m).

- If Refuge inflows must be extended beyond short-duration pulses at high volumes and there is nowhere else to send water during these inflows, outflow should occur as soon as possible to moderate the extent of intrusion.

We have presented our recommendations at several forums to water managers and the various agencies responsible for making water management decisions. These forums include direct

communication from Refuge managers, Refuge specific weekly water coordination meeting with the USACE, quarterly regional water coordination meetings, and periodic calls with the Corps of Engineers. The quarterly water coordination meetings focus on water management for the northern portion of the Everglades (from Lake Okeechobee down to Water Conservation Area 2) and consist of multiple agencies (e.g., U.S. Fish and Wildlife Service, National Park Service, Corps of Engineers, Lake Worth Drainage District, Florida Fish and Wildlife Conservation Commission, South Florida Water Management District). Periodic calls with the Corps of Engineers focus on water management under the various water regulation schedules for each of the Water Conservation Areas.

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Table 1. Mean, 25th and 75th percentiles, and number of days marsh (1-7) and canal (1-8C) stage are greater than or equal to 17 ft.

	Mean		25th Percntile		75th Percntile		Days >= 17 ft	
	1-7	1-8C	1-7	1-8C	1-7	1-8C	1-7	1-8C
Year	ft	ft	ft	ft	ft	ft	days	days
2004	16.30	11.81	15.94	13.64	16.6	16.42	20	0
2005	16.17	16.08	16.12	15.79	16.46	16.45	0	0
2006	16.19	15.69	16.07	15.76	16.57	16.63	16	24
2007	14.97	15.78	15.81	14.98	16.61	16.92	43	79
2008	16.69	16.54	16.49	16.27	16.92	16.93	65	75
2009	16.35	16.11	16.16	15.77	16.59	16.63	0	8
2010	16.61	16.42	16.52	16.11	16.71	16.79	0	15
2011	15.61	15.46	15.64	14.58	16.29	16.27	0	0
2012	15.81	16.26	16.20	15.99	16.78	16.97	70	90
2013	16.53	16.35	16.39	16.11	16.68	16.64	0	0
2014	16.50	16.51	16.22	16.13	16.93	17.10	68	111
2015	16.36	16.27	16.10	15.69	16.84	17.02	42	102

Table 2. Evolution of water management recommendation based on water quality analysis since 2004.

Recommendation
Refuge inflows should be short duration (≤ 5 days) pulses of < 5655 L s^{-1} (< 200 cfs) when absolute canal/marsh stage difference is < 0.1 m (< 0.2 ft) and interior water depths are < 0.2 m (< 0.5 ft).
Refuge inflow rates can be moderate 5655 to 11,310 L s^{-1} (200 to 400 cfs) for short durations if marsh stage is > 0.2 m (> 0.6 ft) higher than canal stage by and waters depths are < 0.1 m (< 0.3 ft).
Refuge inflows should be discontinued when the canal stage is > 0.1 m (> 0.2 ft) higher than marsh stage, unless the rainfall or outflow volumes are 3 to 4-times higher than the inflows.
Refuge inflows should be discontinued when the canal stage is > 0.2 ft (> 0.1 m) higher than marsh stage, unless the rainfall or outflow volumes are equal to or greater than inflows.
If Refuge inflows must be extended beyond short-duration pulses, outflow should be greater than inflow and last several days longer.
If Refuge inflows must be extended beyond short-duration pulses, outflow should be equal to or greater than inflow and last several days longer.
If Refuge inflows must be maintained at high rates, the S-10s and S-39 should be opened to create outflow 3 or 4-times higher than inflow.
If Refuge inflows must be maintained at high rates, the S-10s and S-39 should be opened in conjunction with canal inflows to create outflow equal to higher than inflow.
If Refuge inflows must be extended beyond short-duration pulses at high volumes and there is nowhere to send water during these inflows, outflow should proceed as soon as practicable to moderate the extent of intrusion the marsh receives from the original inflows.

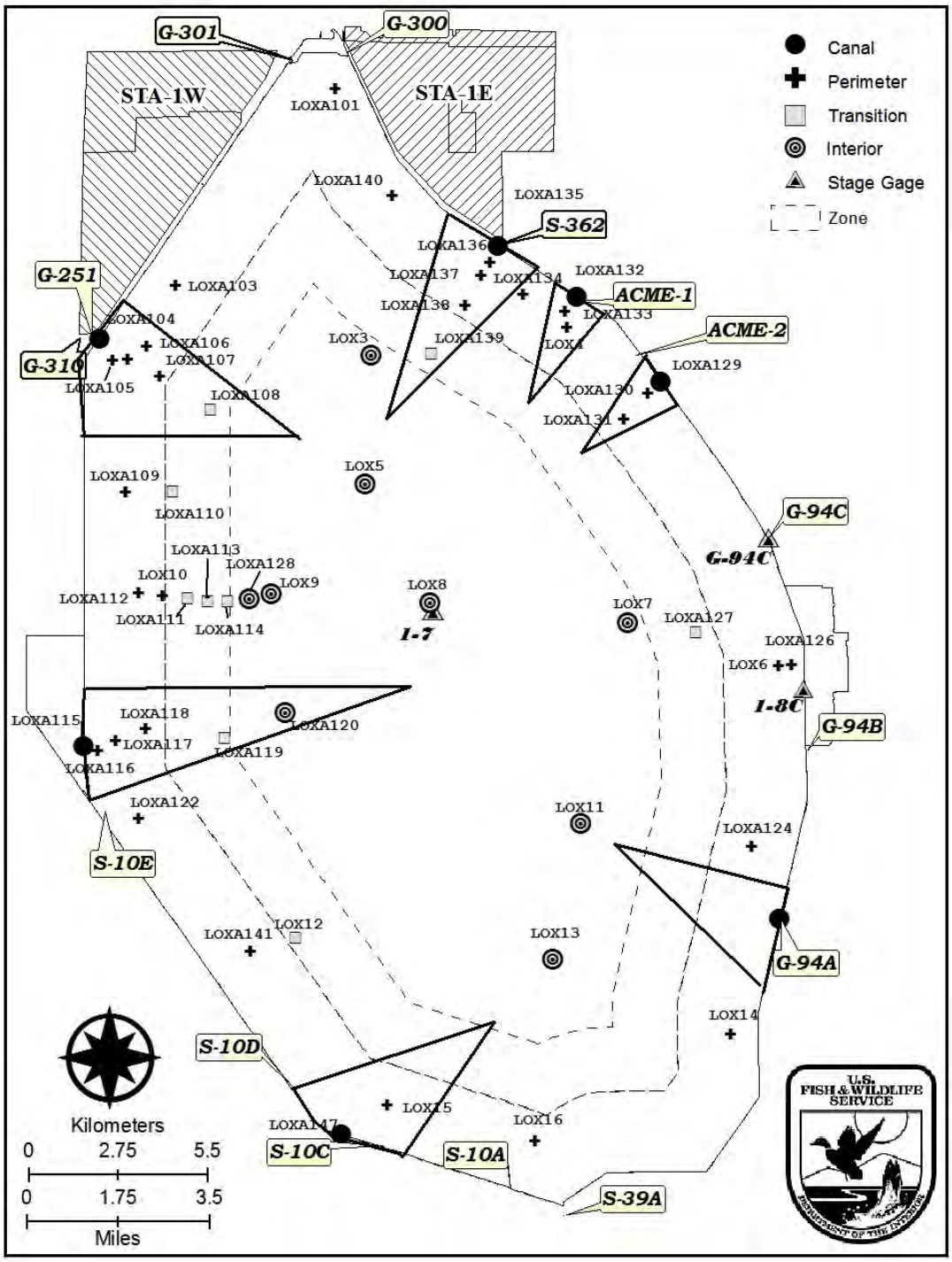
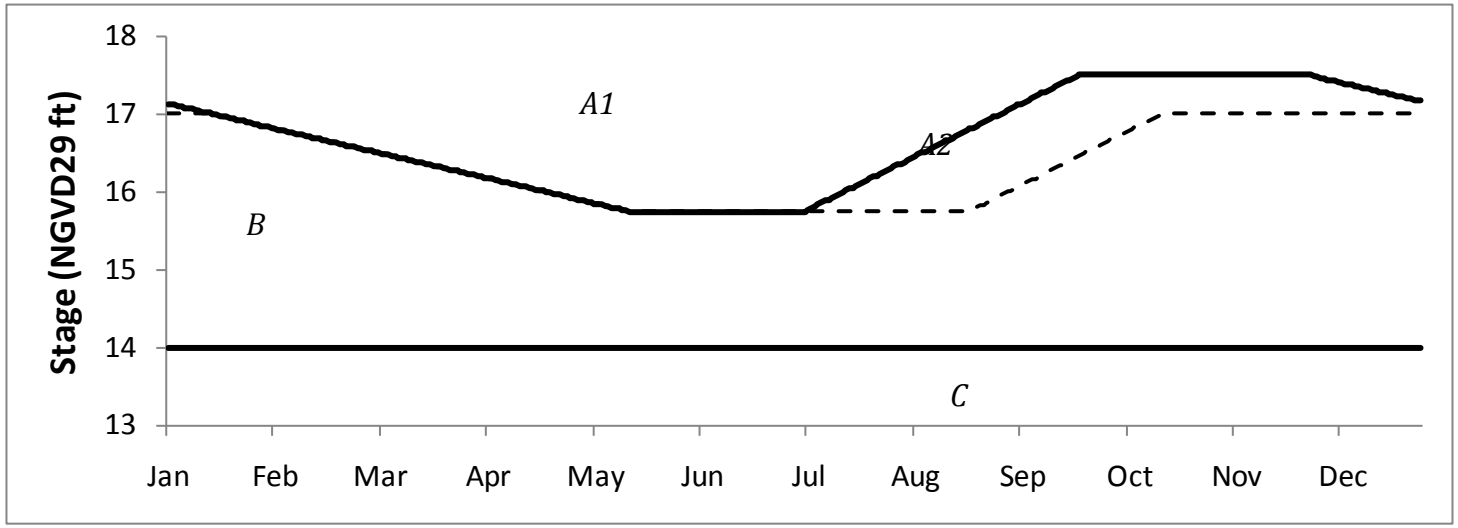


Figure 1. LOXA (LOXA###) and EVPA (LOX#) water quality monitoring stations, inflow and outflow structures, and canal and marsh stage gages used in this report. Solid polygons delineate transects, dashed polygons represent marsh zones.



DATES	USE GAGE	CONDITIONS
1 Jan - 30 Jun	1-8 Canal	All
1 Jul - 31 Dec	1-8 Canal	Except as noted below
	Avg. 1-7, 1-8T, 1-9	During rising stage when canal stage exceeds average.

ZONE	RELEASES
A1	Up to maximum at S-10 (and S-39 when agreed between Corp and SFWMD). Water supply releases as needed.
A2	S-10 releases based on Corps forecasts. Water supply releases as needed. If Lake Okeechobee stage is above WCA-1 stage or no more than one foot below WCA-1 stage, then water supply release from WCA-1 must be preceeded by an equivalent volume of inflow.
B	Water supply is needed. If Lake Okeechobee stage is above WCA-1 stage or no more than one foot below WCA-1 stage, then water supply releases from WCA-1 must be preceeded by an equivalent volume of inflow.
C	No net releases from WCA-1. Any water supply releases must be preceeded by an equivalent volume of inflow.

Figure 2. Water Regulation Schedule for the Arthur R. Marshall Loxahatchee National Wildlife Refuge (USACE 1994).

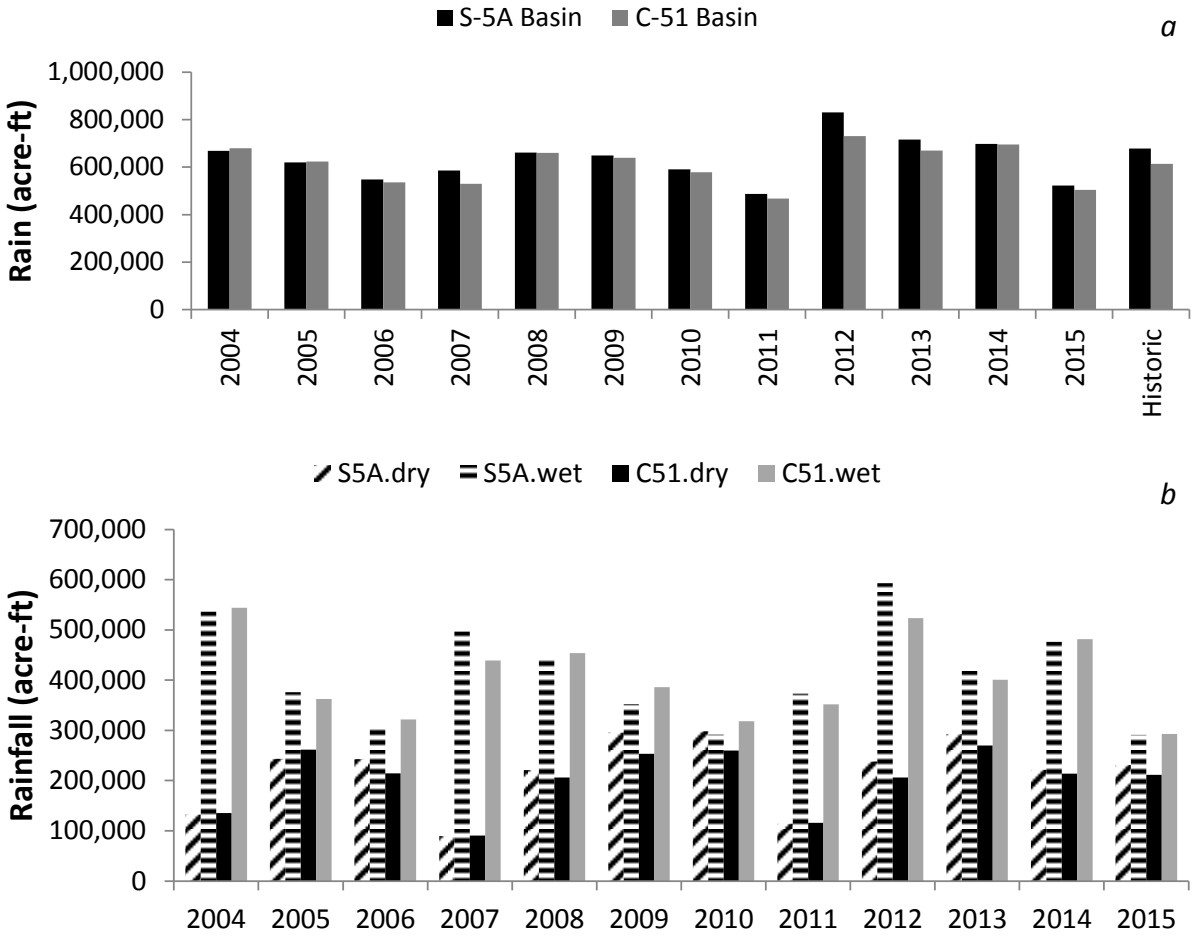


Figure 3. (*a*) Total annual and (*b*) dry and wet season rainfall for the S-5A and C-51 basins. Historic rainfall was determined from 1963 through 2015.

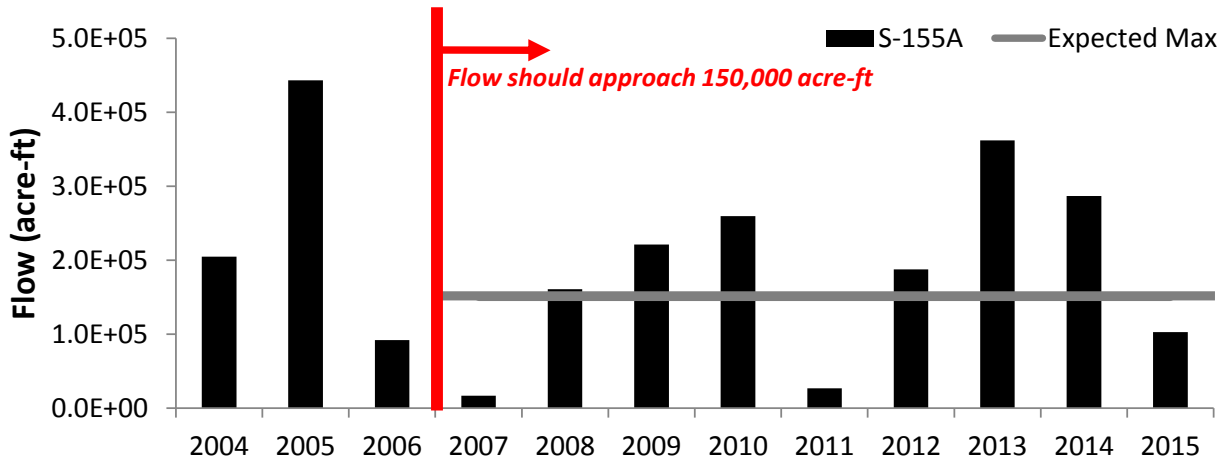


Figure 4. Total annual flows through the S-155A structure. The red vertical bar represents the period when flows through S-155A should approach 150,000 acre-ft as a mixture of L-8 and C-51 basin runoff (Gary Goforth, Inc. 2008). The horizontal grey bar represents the expected maximum (150,000 acre-ft) through S-155A.

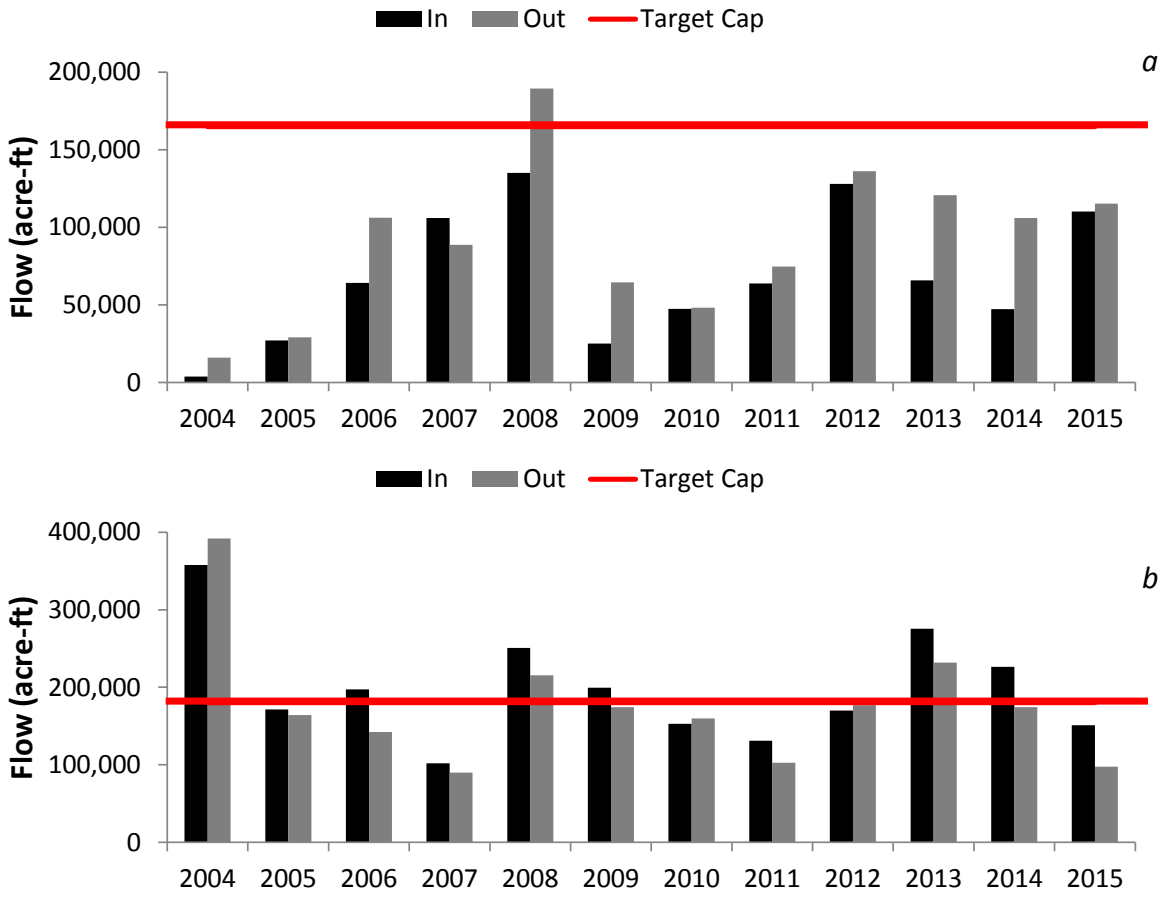


Figure 5. (a) STA-1E and (b) STA-1W annual inflow and outflow volumes. Horizontal red lines represent target treatment capacities for STA-1E (165,000 acre-ft) and STA-1W (180,000 acre-ft; Gary Goforth, Inc. 2008).

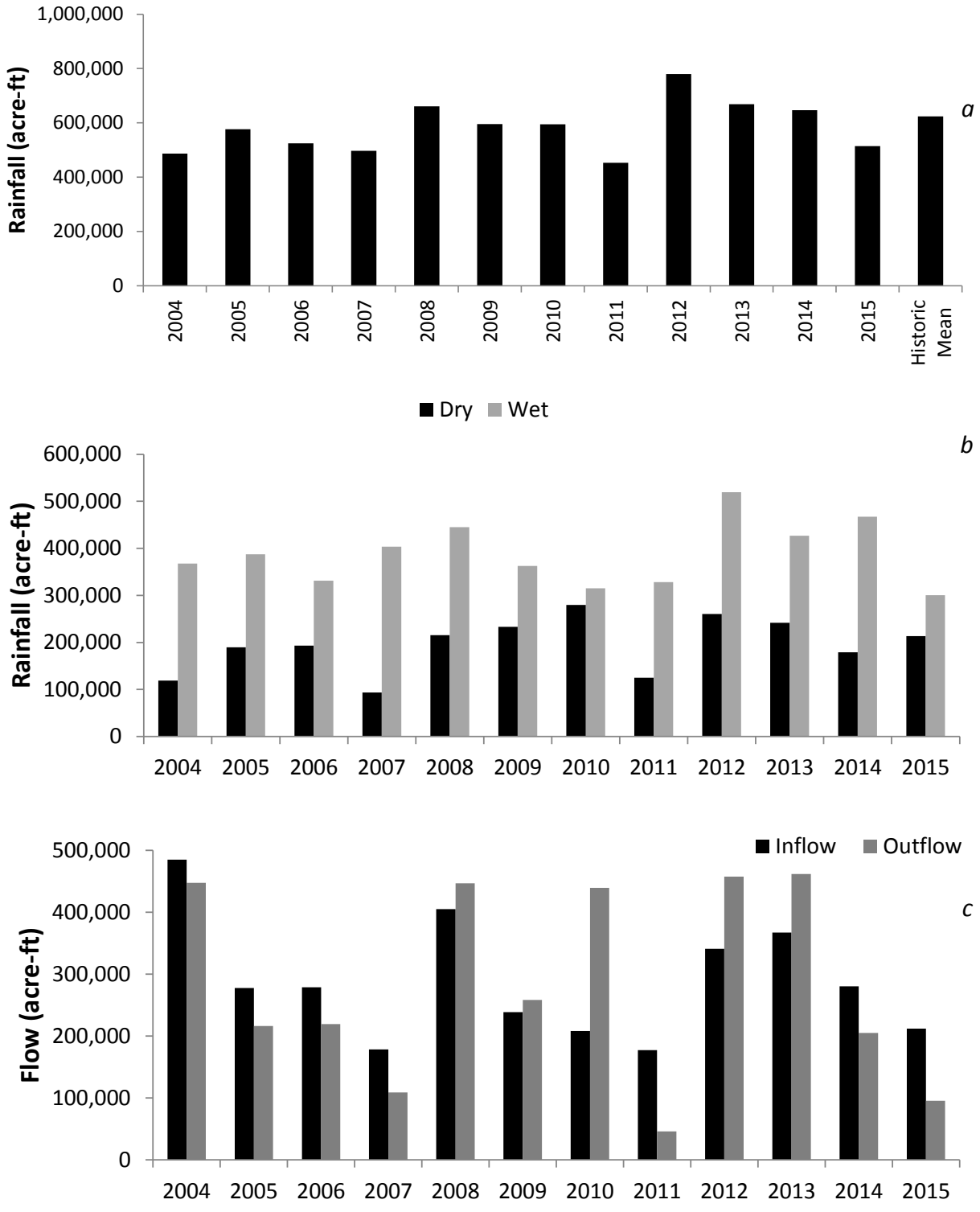


Figure 6. (*a*) Total annual rainfall, (*b*) total dry and wet season rainfall, and (*c*) inflow and outflow for the Refuge. Historic rainfall was determined from 1963 through 2015.

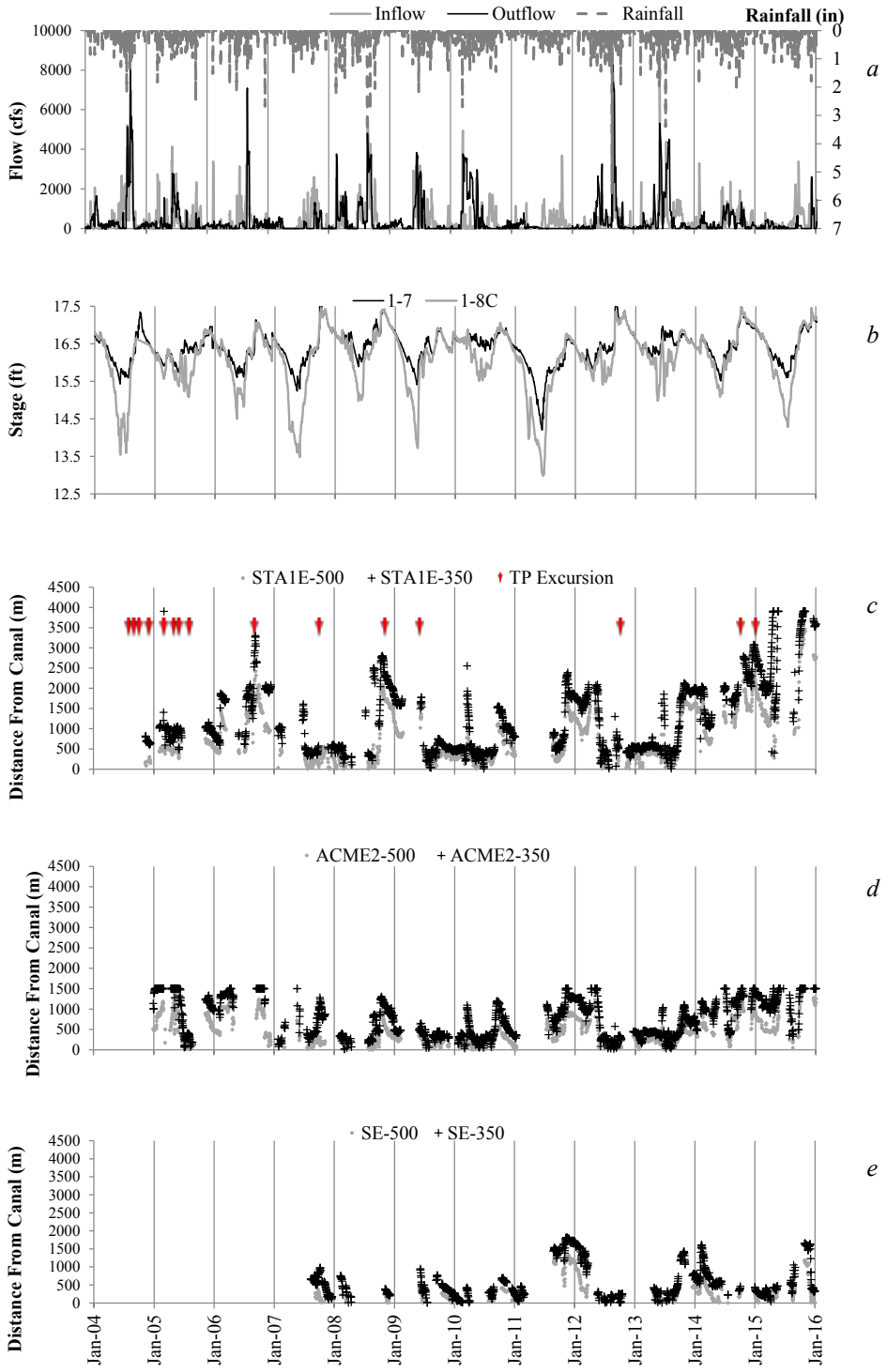


Figure 7. a) Inflow and outflow rates (cfs) summed for all structures from January 2004 to December 2015. b) Canal (G-94C) and marsh (1-7) stage levels (NGVD29). The 350 µS cm^{-1} and 500 µS cm^{-1} conductivity isopleths used to track canal water movement into and out of the marsh interior for: c) STA-1E, d) ACME-2, and e) SE transects. Red arrows indicate total phosphorus Consent Decree excursions.

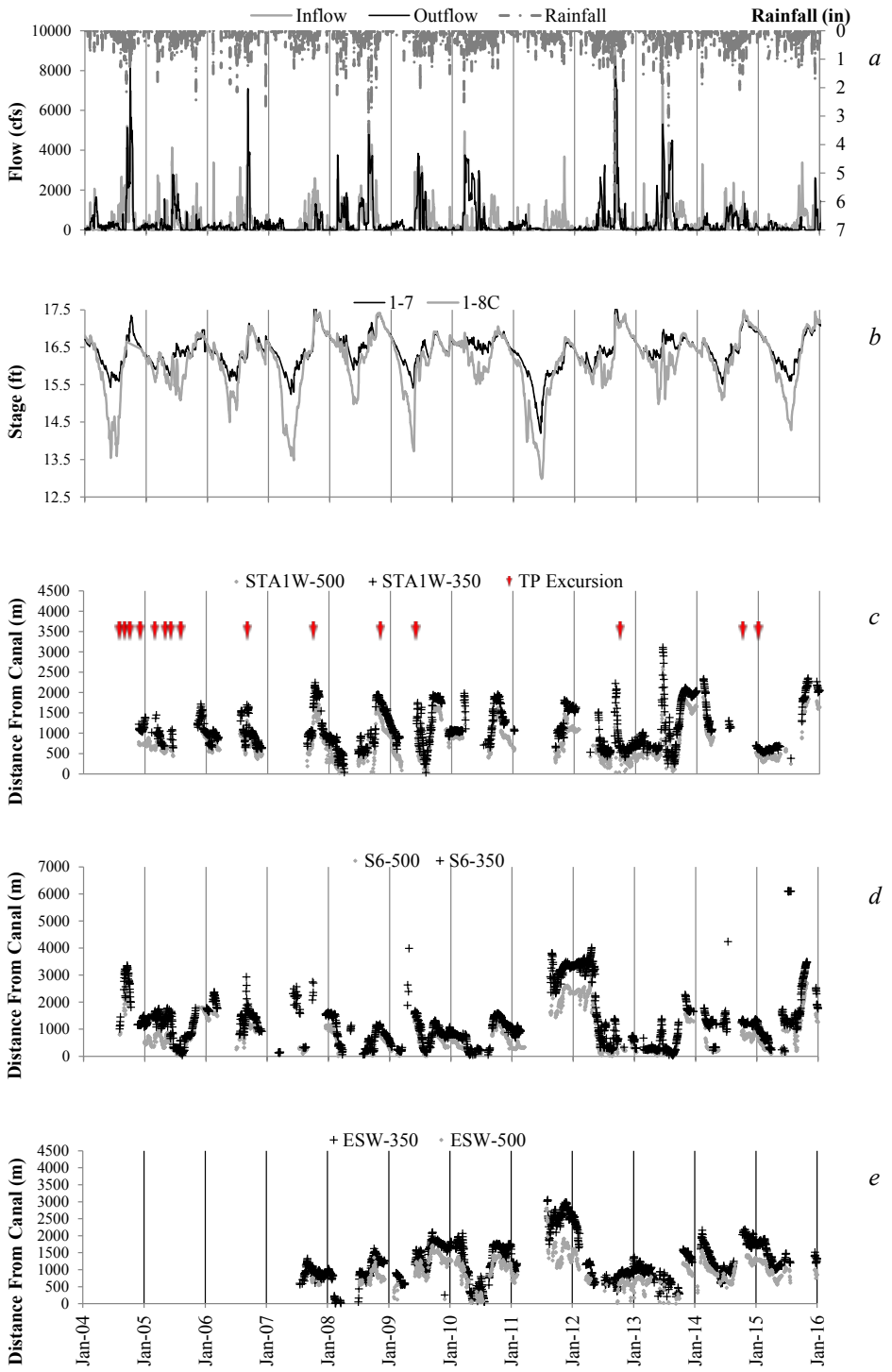


Figure 8. a) Inflow and outflow rates (cfs) summed for all structures from January 2004 to December 2015. b) Canal (G-94C) and marsh (1-7) stage levels (NGVD29). The 350 µS cm^{-1} and 500 µS cm^{-1} conductivity isopleths used to track canal water movement into and out of the marsh interior for: c) STA-1W, d) S-6, and e) the new ESW transects. Red arrows indicate total phosphorus Consent Decree excursions.

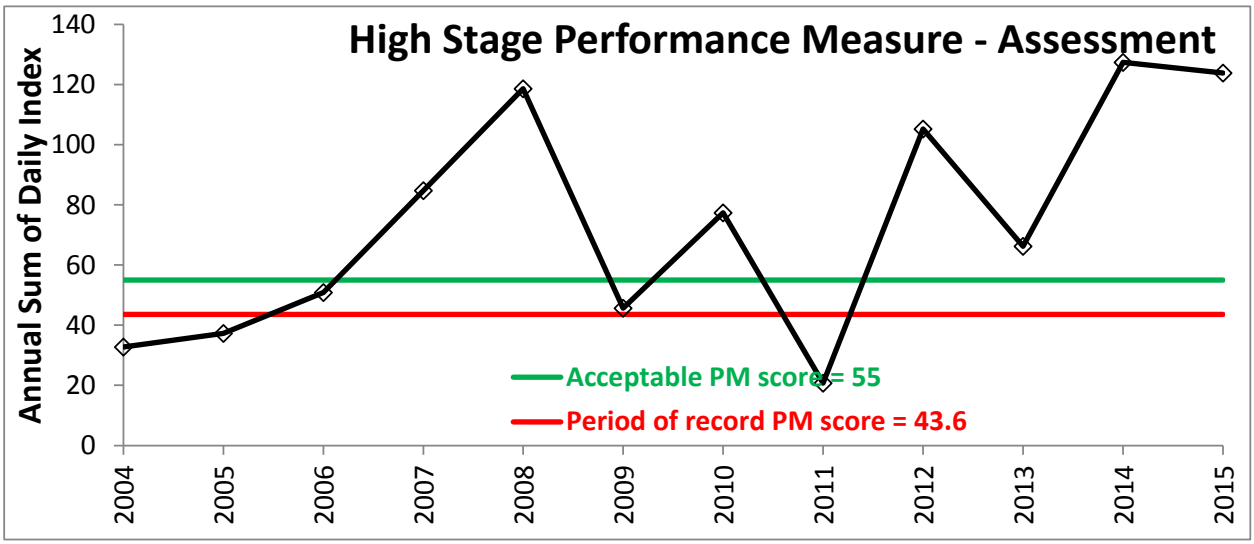


Figure 9. High stage performance measure (PM1b) based on calendar year stage values. The black line represents the PM value for each year, the green line represent the acceptable PM score for the period from 2004 through 2015, and the red line represent the period of record PM score.

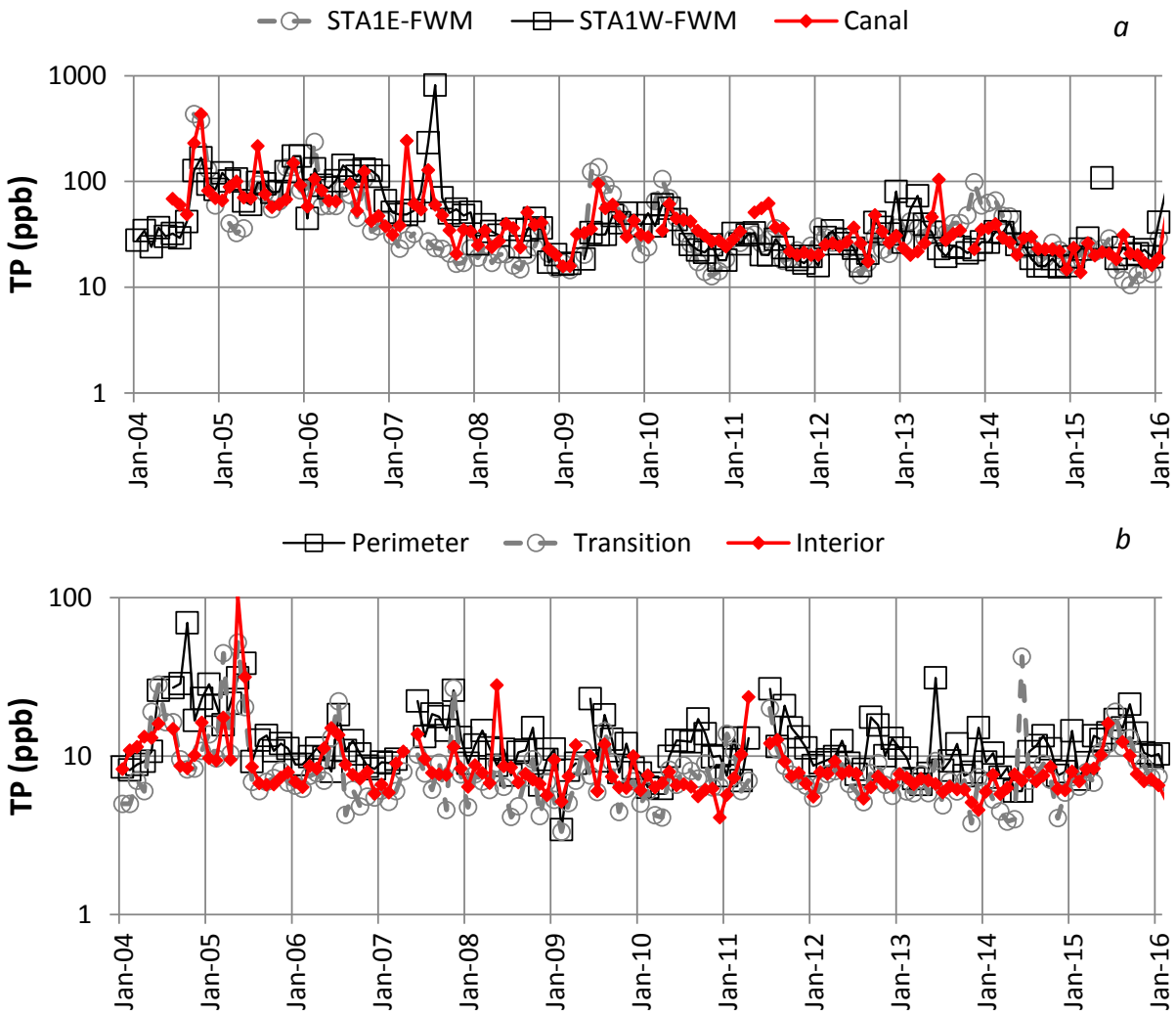


Figure 10. (a) Monthly TP FWM from Refuge inflow structures and TP concentration in the canal. (b) Monthly mean TP concentrations in marsh zones. The y-axes are based on a logarithmic scale.

APPENDIX A

Table A-1. *(a)* Parameter abbreviations spelled-out. *(b)* Individual EVPA and LOXA station summary statistics of water quality data for calendar year 2015. Where values were below the minimum detection limits, one-half of the minimum detection limit is reported (Weaver et al. 2008). Previous summary statistics (2004 – 2012) can be found in the previous annual reports (USFWS 2007a, b, 2009, 2010a, b, 2012a, b, USFWS 2013).

a

ABBREVIATION	TERM	UNIT
TEMP	Temperature	Celsius
DO	Dissolved oxygen	mg L^{-1}
SPCOND	Specific conductance	μS cm^{-1}
pH	pH	
TURB	Turbidity	mg L^{-1}
TSS	Total suspended solids	mg L^{-1}
NOX	Nitrate+nitrite	mg L^{-1}
TKN	Total Kjeldahl Nitrogen	mg L^{-1}
TN	Total nitrogen	mg L^{-1}
OPO4	Orthophosphate	μg L^{-1}
TP	Total phosphorus	μg L^{-1}
SIO2	Silica	mg L^{-1}
CA	Calcium	mg L^{-1}
CL	Chloride	mg L^{-1}
SO4	Sulfate	mg L^{-1}
ALKALNYA	Alkalinity	mg L^{-1}
TDOC	Total dissolved organic carbon	mg L^{-1}
TOC	Total organic carbon	mg L^{-1}
TDS	Total dissolved solids	mg L^{-1}

PERIOD	PARAMETER	STATISTIC	LOXA101	LOXA102	LOXA103	LOXA104	LOXA105	LOXA106	LOXA107	LOXA108	LOXA109	LOXA110
2004-2014	ALK	Mean	146	80	74	184	154	112	71	29	55	25
2015	ALK	Mean	178	104	95	171	136	129	48	22	47	25
2004-2014	ALK	Variance	1820	2245	2146	2215	2364	2191	1708	3521	611	52
2015	ALK	Variance	301	4281	3786	479	4199	3835	61	2	202	27
2004-2014	ALK	25th Percentile	120	53	42	150	122	80	43	14	40	20
2015	ALK	25th Percentile	165	51	43	154	83	95	44	22	37	25
2004-2014	ALK	Median	150	64	58	185	150	102	53	16	48	24
2015	ALK	Median	179	105	95	163	138	141	49	23	44	27
2004-2014	ALK	75th Percentile	170	92	84	210	200	144	97	22	61	29
2015	ALK	75th Percentile	192	158	147	181	196	175	52	23	57	28
2004-2014	ALK	Count	45	31	37	122	51	41	19	28	90	40
2015	ALK	Count	6	4	4	11	5	4	3	3	6	5
2004-2014	CA	Mean	50	25	22	60	62	45	20	6	19	8
2015	CA	Mean	60	35	32	55	45	43	20	7	15	7
2004-2014	CA	Variance	246	251	246	309	10172	5306	197	3	105	6
2015	CA	Variance	82	380	333	23	422	293	33	1	45	1
2004-2014	CA	25th Percentile	40	17	12	48	33	23	12	5	12	6
2015	CA	25th Percentile	53	16	13	52	30	38	18	6	10	6
2004-2014	CA	Median	50	19	17	57	48	31	14	6	15	7
2015	CA	Median	61	46	44	55	51	53	21	7	12	7
2004-2014	CA	75th Percentile	58	29	26	69	63	45	20	7	23	9
2015	CA	75th Percentile	66	50	46	58	61	54	23	7	20	7
2004-2014	CA	Count	45	31	37	122	51	42	19	28	90	40
2015	CA	Count	7	5	5	12	6	5	4	4	7	6
2004-2014	CL	Mean	88	41	39	118	80	56	32	26	40	25
2015	CL	Mean	131	72	61	123	81	76	48	23	32	19
2004-2014	CL	Variance	1195	638	680	1323	1546	1019	416	107	717	135
2015	CL	Variance	1420	2071	2465	261	2154	1920	882	60	351	62
2004-2014	CL	25th Percentile	63	26	20	93	49	30	20	19	21	16
2015	CL	25th Percentile	99	26	21	117	39	32	23	18	22	12
2004-2014	CL	Median	86	33	30	124	69	45	26	26	30	23
2015	CL	Median	125	78	24	120	79	96	45	20	22	20
2004-2014	CL	75th Percentile	113	48	48	140	110	82	31	34	51	28
2015	CL	75th Percentile	166	115	110	133	123	110	68	25	43	23
2004-2014	CL	Count	89	63	70	120	84	78	45	67	99	83
2015	CL	Count	7	7	7	12	8	7	6	7	9	9

PERIOD	PARAMETER	STATISTIC	LOXA101	LOXA102	LOXA103	LOXA104	LOXA105	LOXA106	LOXA107	LOXA108	LOXA109	LOXA110
2004-2014	DCS	Mean	28	28	29	106	33	28	26	25	42	31
2015	DCS	Mean	36	32	30	1	39	32	30	27	45	33
2004-2014	DCS	Variance	182	152	177	1896	220	176	107	104	197	144
2015	DCS	Variance	128	140	193		197	162	229	159	247	208
2004-2014	DCS	25th Percentile	18	18	18	124	22	16	16	18	31	21
2015	DCS	25th Percentile	27	24	22	1	28	24	20	19	39	28
2004-2014	DCS	Median	23	26	25	124	29	25	24	24	38	28
2015	DCS	Median	37	36	33	1	42	29	30	29	49	36
2004-2014	DCS	75th Percentile	34	38	37	124	45	38	32	32	52	41
2015	DCS	75th Percentile	42	38	36	1	49	39	35	30	59	43
2004-2014	DCS	Count	77	50	55	99	74	65	38	56	81	72
2015	DCS	Count	7	7	7	12	8	7	6	7	9	9
2004-2014	SIO2	Mean	15	14	13	15	17	15	14	5	8	6
2015	SIO2	Mean	14	8	6	11	15	14	8	5	7	4
2004-2014	SIO2	Variance	56	56	64	50	57	79	90	9	36	15
2015	SIO2	Variance	10	39	38	14	61	62	27	17	29	12
2004-2014	SIO2	25th Percentile	10	10	8	9	12	8	7	3	3	3
2015	SIO2	25th Percentile	11	4	2	8	9	11	5	4	3	1
2004-2014	SIO2	Median	13	14	12	14	16	14	11	4	7	4
2015	SIO2	Median	14	8	6	9	19	15	9	6	6	4
2004-2014	SIO2	75th Percentile	17	19	19	21	23	21	18	6	12	7
2015	SIO2	75th Percentile	17	12	11	12	20	19	10	8	10	6
2004-2014	SIO2	Count	45	31	37	121	51	41	19	28	90	40
2015	SIO2	Count	6	4	4	11	5	4	3	3	6	5

PERIOD	PARAMETER	STATISTIC	LOXA101	LOXA102	LOXA103	LOXA104	LOXA105	LOXA106	LOXA107	LOXA108	LOXA109	LOXA110
2004-2014	SO4	Mean	12.6	7.2	5.7	46.7	19.5	11.3	4.6	0.4	4.9	0.9
2015	SO4	Mean	27.6	11.2	4.5	39.4	16.5	11.4	1.2	0.6	3.5	0.7
2004-2014	SO4	Variance	186.4	156.1	149.5	453.7	339.9	211.5	104.6	0.4	57.9	2.5
2015	SO4	Variance	169.5	148.3	15.4	60.6	210.4	81.0	0.1	0.3	13.5	0.2
2004-2014	SO4	25th Percentile	3.1	1.4	1.0	32.6	5.9	2.2	0.7	0.1	1.1	0.3
2015	SO4	25th Percentile	18.5	1.5	1.3	35.7	3.8	2.2	1.0	0.2	1.2	0.2
2004-2014	SO4	Median	7.2	2.5	1.6	45.0	10.7	4.6	1.1	0.2	1.8	0.5
2015	SO4	Median	30.4	10.5	1.8	40.1	13.3	13.9	1.0	0.2	1.3	0.7
2004-2014	SO4	75th Percentile	16.0	5.5	3.5	62.0	32.3	13.5	1.7	0.5	5.6	0.7
2015	SO4	75th Percentile	36.8	14.4	8.0	42.0	29.3	18.8	1.3	0.7	5.0	0.7
2004-2014	SO4	Count	89	63	70	117	84	78	45	67	98	83
2015	SO4	Count	7	7	7	12	8	7	6	7	9	9
2004-2014	TDEPTH	Mean	23	22	26	110	25	22	19	19	32	22
2015	TDEPTH	Mean	31	30	28	NA	32	30	29	24	36	24
2004-2014	TDEPTH	Variance	1	1	8	19	2	2	1	1	1	1
2015	TDEPTH	Variance	1	2	2	NA	2	2	2	1	2	1
2004-2014	TDEPTH	25th Percentile	15	15	13	130	17	12	12	12	24	14
2015	TDEPTH	25th Percentile	26	22	20	NA	24	19	21	16	30	18
2004-2014	TDEPTH	Median	21	19	19	130	20	19	18	17	30	19
2015	TDEPTH	Median	30	30	26	NA	31	28	29	26	36	24
2004-2014	TDEPTH	75th Percentile	31	30	30	130	34	31	24	25	39	28
2015	TDEPTH	75th Percentile	31	38	35	NA	45	36	32	30	50	32
2004-2014	TDEPTH	Count	83	59	64	10	75	70	49	64	90	82
2015	TDEPTH	Count	7	7	7	0	8	7	6	7	9	9
2004-2014	TDOC	Mean	149	80	71	184	154	111	74	31	55	25
2015	TDOC	Mean	187	204	149	173	197	159	89	23	62	34
2004-2014	TDOC	Variance	1580	1841	1779	2452	1920	1570	1798	4094	570	54
2015	TDOC	Variance	1417	NA	8141	1191	3177	3245	2245	NA	1231	3
2004-2014	TDOC	25th Percentile	128	57	45	144	127	80	47	14	40	20
2015	TDOC	25th Percentile	165	204	117	149	196	143	72	23	41	33
2004-2014	TDOC	Median	151	64	58	183	150	102	53	16	48	23
2015	TDOC	Median	168	204	149	181	217	163	89	23	53	35
2004-2014	TDOC	75th Percentile	172	92	81	212	195	134	97	22	61	28
2015	TDOC	75th Percentile	199	204	181	191	225	179	105	23	66	35
2004-2014	TDOC	Count	36	27	31	99	39	32	15	24	69	31
2015	TDOC	Count	3	1	2	12	5	4	2	1	11	3

PERIOD	PARAMETER	STATISTIC	LOXA101	LOXA102	LOXA103	LOXA104	LOXA105	LOXA106	LOXA107	LOXA108	LOXA109	LOXA110
2004-2014	TDS	Mean	393	220	223	513	408	304	199	103	184	114
2015	TDS	Mean	520	284	263	479	386	378	204	118	138	89
2004-2014	TDS	Variance	13409	17390	18096	20183	21102	19254	20051	520	7835	1343
2015	TDS	Variance	2044	31448	31354	3009	39143	28289	4905	240	2287	229
2004-2014	TDS	25th Percentile	300	146	130	424	301	189	121	89	120	88
2015	TDS	25th Percentile	499	137	113	435	192	358	181	112	114	86
2004-2014	TDS	Median	390	177	182	522	410	279	144	100	157	111
2015	TDS	Median	528	287	266	450	516	443	239	124	123	91
2004-2014	TDS	75th Percentile	499	243	269	598	543	410	191	115	229	127
2015	TDS	75th Percentile	552	434	415	531	522	463	244	127	166	96
2004-2014	TDS	Count	45	30	36	122	51	41	19	27	90	40
2015	TDS	Count	6	4	4	11	5	4	3	3	6	5
2004-2014	TOC	Mean	30	24	26	30	29	25	24	24	22	21
2015	TOC	Mean	24	23	24	22	24	25	28	24	16	17
2004-2014	TOC	Variance	56	64	52	56	51	37	31	28	29	36
2015	TOC	Variance	11	22	25	12	48	35	40	18	3	27
2004-2014	TOC	25th Percentile	26	20	22	25	25	20	19	20	18	17
2015	TOC	25th Percentile	22	18	20	20	18	23	24	21	15	13
2004-2014	TOC	Median	30	22	25	30	30	25	23	23	21	20
2015	TOC	Median	23	25	26	23	25	25	29	24	17	16
2004-2014	TOC	75th Percentile	34	27	30	34	34	30	27	28	25	23
2015	TOC	75th Percentile	25	27	27	24	30	27	33	27	17	21
2004-2014	TOC	Count	45	31	37	120	50	40	19	28	88	39
2015	TOC	Count	7	5	5	12	6	5	4	4	7	6
2004-2014	DO	Mean	2.8	3.8	2.7	4.9	2.7	3.2	2.7	5.0	2.8	5.0
2015	DO	Mean	1.1	2.2	2.5	5.2	1.2	2.4	2.7	4.9	1.8	3.3
2004-2014	DO	Variance	3.1	3.9	2.4	3.2	3.1	2.6	2.0	6.1	3.2	4.2
2015	DO	Variance	0.2	0.1	1.3	2.2	0.8	0.1	0.8	2.4	2.1	2.1
2004-2014	DO	25th Percentile	1.5	2.3	1.6	3.7	1.5	2.2	1.9	3.1	1.4	3.5
2015	DO	25th Percentile	1.0	2.0	1.8	4.7	0.2	2.2	2.1	3.6	0.6	2.5
2004-2014	DO	Median	2.4	3.7	2.3	5.1	2.3	2.9	2.3	5.0	2.3	4.9
2015	DO	Median	1.2	2.4	1.9	5.5	1.4	2.5	2.4	4.7	1.4	3.6
2004-2014	DO	75th Percentile	3.9	4.7	3.3	6.2	3.6	4.0	3.5	6.5	3.7	6.5
2015	DO	75th Percentile	1.4	2.4	2.9	6.0	1.7	2.6	3.4	6.4	2.7	4.4
2004-2014	DO	Count	87	61	68	120	85	78	47	67	98	84
2015	DO	Count	7	7	7	12	8	7	6	7	9	9

PERIOD	PARAMETER	STATISTIC	LOXA101	LOXA102	LOXA103	LOXA104	LOXA105	LOXA106	LOXA107	LOXA108	LOXA109	LOXA110
2004-2014	OPO4	Mean	0.011	0.006	0.006	0.021	0.013	0.006	0.008	0.004	0.006	0.006
2015	OPO4	Mean	0.006	0.003	0.003	0.004	0.005	0.004	0.002	0.003	0.003	0.003
2004-2014	OPO4	Variance	0.001	0.000	0.000	0.002	0.001	0.000	0.000	0.000	0.000	0.000
2015	OPO4	Variance	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2004-2014	OPO4	25th Percentile	0.003	0.003	0.003	0.004	0.003	0.003	0.003	0.002	0.003	0.002
2015	OPO4	25th Percentile	0.004	0.002	0.002	0.003	0.003	0.002	0.002	0.002	0.002	0.002
2004-2014	OPO4	Median	0.004	0.004	0.004	0.006	0.004	0.003	0.003	0.003	0.003	0.003
2015	OPO4	Median	0.006	0.002	0.002	0.005	0.005	0.003	0.002	0.002	0.003	0.002
2004-2014	OPO4	75th Percentile	0.006	0.005	0.005	0.014	0.007	0.005	0.005	0.004	0.005	0.004
2015	OPO4	75th Percentile	0.006	0.003	0.002	0.005	0.007	0.005	0.002	0.003	0.004	0.003
2004-2014	OPO4	Count	43	29	35	114	50	39	19	27	86	39
2015	OPO4	Count	7	5	5	12	6	5	4	4	7	6
2004-2014	PH	Mean	7.0	6.8	6.8	7.6	7.0	6.9	6.7	6.7	6.7	6.8
2015	PH	Mean	7.0	6.9	6.8	7.7	6.9	6.9	6.5	6.6	6.5	6.4
2004-2014	PH	Variance	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2
2015	PH	Variance	0.0	0.1	0.1	0.0	0.1	0.2	0.1	0.0	0.0	0.0
2004-2014	PH	25th Percentile	6.9	6.6	6.6	7.5	6.7	6.7	6.5	6.4	6.4	6.5
2015	PH	25th Percentile	6.9	6.6	6.5	7.6	6.7	6.5	6.4	6.4	6.5	6.4
2004-2014	PH	Median	7.0	6.8	6.8	7.6	7.0	6.9	6.6	6.6	6.6	6.7
2015	PH	Median	7.0	6.7	7.0	7.7	6.8	6.7	6.6	6.5	6.5	6.4
2004-2014	PH	75th Percentile	7.2	7.0	7.0	7.8	7.1	7.1	6.8	6.9	6.8	7.0
2015	PH	75th Percentile	7.1	7.2	7.0	7.8	7.1	7.2	6.7	6.7	6.6	6.5
2004-2014	PH	Count	88	62	69	123	86	79	48	66	101	86
2015	PH	Count	7	7	7	12	8	7	6	7	9	9
2004-2014	SPCOND	Mean	593	291	271	804	552	394	228	143	252	138
2015	SPCOND	Mean	804	458	376	800	531	496	259	130	211	122
2004-2014	SPCOND	Variance	40137	25402	29420	52846	57164	40621	20328	2244	19533	2439
2015	SPCOND	Variance	18274	70277	76565	6437	93209	75487	15947	1064	9056	1630
2004-2014	SPCOND	25th Percentile	442	191	161	679	357	233	153	110	148	108
2015	SPCOND	25th Percentile	709	194	152	737	279	220	148	108	157	97
2004-2014	SPCOND	Median	586	245	204	828	483	340	183	133	203	131
2015	SPCOND	Median	845	507	172	800	537	584	243	126	170	118
2004-2014	SPCOND	75th Percentile	738	330	315	945	793	521	228	172	321	159
2015	SPCOND	75th Percentile	904	710	658	872	770	724	337	150	265	135
2004-2014	SPCOND	Count	89	63	70	122	85	78	48	68	100	85
2015	SPCOND	Count	7	7	7	12	8	7	6	7	9	9

PERIOD	PARAMETER	STATISTIC	LOXA101	LOXA102	LOXA103	LOXA104	LOXA105	LOXA106	LOXA107	LOXA108	LOXA109	LOXA110
2004-2014	TEMP	Mean	23	23	22	25	23	23	23	25	24	24
2015	TEMP	Mean	22	23	23	27	23	24	24	26	24	24
2004-2014	TEMP	Variance	20	19	21	21	22	20	17	21	20	20
2015	TEMP	Variance	11	20	18	16	16	21	18	12	18	20
2004-2014	TEMP	25th Percentile	20	19	19	22	21	20	21	21	21	21
2015	TEMP	25th Percentile	21	21	21	24	21	21	21	24	22	21
2004-2014	TEMP	Median	23	22	22	26	23	24	23	25	24	25
2015	TEMP	Median	21	21	21	28	22	21	24	26	24	23
2004-2014	TEMP	75th Percentile	27	26	26	29	27	27	27	28	28	28
2015	TEMP	75th Percentile	25	27	27	30	26	27	27	29	27	28
2004-2014	TEMP	Count	89	63	70	122	86	79	48	68	101	86
2015	TEMP	Count	7	7	7	12	8	7	6	7	9	9
2004-2014	TN	Mean	1.5	1.1	1.2	1.9	1.6	1.3	1.1	1.3	1.1	1.2
2015	TN	Mean	1.4	1.3	1.2	1.4	1.5	1.4	1.5	1.5	0.9	1.1
2004-2014	TN	Variance	0.2	0.2	0.2	0.4	0.3	0.3	0.1	0.1	0.1	0.1
2015	TN	Variance	0.1	0.1	0.1	0.1	0.5	0.3	0.2	0.1	0.0	0.1
2004-2014	TN	25th Percentile	1.3	0.9	0.9	1.6	1.3	1.0	1.0	1.1	0.9	1.0
2015	TN	25th Percentile	1.3	1.1	1.1	1.3	0.9	1.1	1.2	1.4	0.9	0.9
2004-2014	TN	Median	1.5	1.0	1.1	1.8	1.6	1.2	1.1	1.3	1.1	1.2
2015	TN	Median	1.4	1.4	1.2	1.5	1.4	1.3	1.5	1.6	1.0	1.2
2004-2014	TN	75th Percentile	1.6	1.3	1.3	2.2	1.9	1.4	1.3	1.5	1.3	1.4
2015	TN	75th Percentile	1.5	1.5	1.4	1.6	1.9	1.6	1.8	1.7	1.0	1.4
2004-2014	TN	Count	45	31	37	121	50	40	20	28	90	40
2015	TN	Count	7	5	5	12	6	5	4	4	7	6

PERIOD	PARAMETER	STATISTIC	LOXA101	LOXA102	LOXA103	LOXA104	LOXA105	LOXA106	LOXA107	LOXA108	LOXA109	LOXA110
2004-2014	TP	Mean	0.019	0.010	0.010	0.056	0.023	0.012	0.010	0.007	0.009	0.009
2015	TP	Mean	0.019	0.013	0.013	0.022	0.017	0.013	0.010	0.009	0.010	0.007
2004-2014	TP	Variance	0.001	0.000	0.000	0.009	0.001	0.000	0.000	0.000	0.000	0.000
2015	TP	Variance	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2004-2014	TP	25th Percentile	0.010	0.007	0.007	0.026	0.012	0.007	0.006	0.005	0.007	0.006
2015	TP	25th Percentile	0.013	0.009	0.009	0.019	0.006	0.008	0.010	0.007	0.009	0.005
2004-2014	TP	Median	0.013	0.009	0.010	0.033	0.017	0.010	0.008	0.006	0.008	0.007
2015	TP	Median	0.017	0.010	0.012	0.023	0.016	0.013	0.012	0.009	0.010	0.006
2004-2014	TP	75th Percentile	0.020	0.012	0.012	0.051	0.023	0.014	0.011	0.008	0.011	0.009
2015	TP	75th Percentile	0.018	0.014	0.014	0.026	0.022	0.015	0.013	0.011	0.012	0.008
2004-2014	TP	Count	92	63	70	123	88	79	48	69	101	85
2015	TP	Count	7	7	7	12	8	7	6	7	9	9
2004-2014	TSS	Mean	3.9	3.5	3.7	4.8	3.8	3.6	3.9	4.0	3.8	3.9
2015	TSS	Mean	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
2004-2014	TSS	Variance	4.8	2.3	2.6	4.2	3.1	2.3	9.4	2.5	3.0	2.5
2015	TSS	Variance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2004-2014	TSS	25th Percentile	2.0	2.0	2.5	3.1	2.0	2.0	1.6	3.0	2.5	2.0
2015	TSS	25th Percentile	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
2004-2014	TSS	Median	4.5	3.3	4.0	5.0	5.0	5.0	5.0	5.0	3.8	5.0
2015	TSS	Median	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
2004-2014	TSS	75th Percentile	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
2015	TSS	75th Percentile	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
2004-2014	TSS	Count	81	56	62	122	79	72	41	61	98	76
2015	TSS	Count	6	6	6	11	7	6	5	6	8	8

PERIOD	PARAMETER	STATISTIC	LOXA111	LOXA112	LOXA113	LOXA114	LOXA115	LOXA116	LOXA117	LOXA118	LOXA119	LOXA120
2004-2014	ALK	Mean	27	45	23	19	177	169	102	50	30	20
2015	ALK	Mean	27	51	24	21	163		120	70	34	23
2004-2014	ALK	Variance	88	381	51	35	2312	3803	1653	643	85	42
2015	ALK	Variance	85	903	74	37	365		3024	2312	45	24
2004-2014	ALK	25th Percentile	22	33	17	15	145	141	70	31	25	16
2015	ALK	25th Percentile	22	30	21	17	153		73	36	31	22
2004-2014	ALK	Median	27	40	23	18	175	176	100	41	30	20
2015	ALK	Median	27	39	21	22	156		119	43	34	23
2004-2014	ALK	75th Percentile	31	53	27	23	202	216	130	62	36	24
2015	ALK	75th Percentile	35	75	33	25	177		164	105	37	24
2004-2014	ALK	Count	56	74	58	59	121	34	73	92	89	103
2015	ALK	Count	6	6	5	6	11	0	6	7	7	7
2004-2014	CA	Mean	9	14	7	7	57	55	32	16	9	7
2015	CA	Mean	8	17	7	6	52		37	22	9	7
2004-2014	CA	Variance	18	42	5	17	324	489	209	71	10	17
2015	CA	Variance	5	84	3	1	92		266	209	3	1
2004-2014	CA	25th Percentile	6	10	5	5	46	43	20	10	8	5
2015	CA	25th Percentile	6	10	6	5	45		26	11	8	6
2004-2014	CA	Median	8	12	7	6	55	53	31	13	8	6
2015	CA	Median	8	11	7	6	51		38	16	9	7
2004-2014	CA	75th Percentile	10	17	8	7	68	70	44	21	11	8
2015	CA	75th Percentile	10	26	8	7	58		48	32	10	7
2004-2014	CA	Count	56	74	58	59	122	33	74	92	90	100
2015	CA	Count	7	7	6	7	12	0	7	8	8	8
2004-2014	CL	Mean	19	31	19	18	108	88	61	33	20	23
2015	CL	Mean	20	40	17	17	116		76	51	23	25
2004-2014	CL	Variance	97	536	76	45	1347	1617	1310	643	78	96
2015	CL	Variance	37	919	13	26	563		1103	1278	50	107
2004-2014	CL	25th Percentile	12	15	13	13	86	68	31	17	13	16
2015	CL	25th Percentile	15	17	16	14	90		43	23	17	18
2004-2014	CL	Median	18	21	17	17	114	94	54	22	18	21
2015	CL	Median	18	20	16	15	119		83	32	21	20
2004-2014	CL	75th Percentile	23	38	23	22	133	110	87	37	23	27
2015	CL	75th Percentile	25	75	18	18	130		98	82	28	30
2004-2014	CL	Count	90	95	95	93	121	34	100	104	107	113
2015	CL	Count	7	8	8	10	12	0	8	8	10	11

PERIOD	PARAMETER	STATISTIC	LOXA111	LOXA112	LOXA113	LOXA114	LOXA115	LOXA116	LOXA117	LOXA118	LOXA119	LOXA120
2004-2014	DCS	Mean	36	41	37	37	108	84	39	44	43	47
2015	DCS	Mean	41	48	41	40	1		51	50	43	45
2004-2014	DCS	Variance	142	174	144	161	1743	835	185	187	177	180
2015	DCS	Variance	121	134	147	200			488	137	243	269
2004-2014	DCS	25th Percentile	27	30	29	28	124	81	30	34	34	38
2015	DCS	25th Percentile	34	40	34	30	1		36	42	31	33
2004-2014	DCS	Median	35	39	33	34	124	89	37	41	41	48
2015	DCS	Median	37	51	42	43	1		48	52	44	43
2004-2014	DCS	75th Percentile	44	51	47	43	124	98	49	52	52	57
2015	DCS	75th Percentile	45	55	48	50	1		58	55	56	58
2004-2014	DCS	Count	78	79	79	79	99	15	82	86	87	92
2015	DCS	Count	7	8	8	10	12	0	8	8	10	11
2004-2014	SIO2	Mean	5	7	4	4	16	16	14	9	7	5
2015	SIO2	Mean	5	8	4	4	13		16	12	7	6
2004-2014	SIO2	Variance	14	20	9	8	52	54	45	30	15	4
2015	SIO2	Variance	14	50	13	12	30		48	65	15	2
2004-2014	SIO2	25th Percentile	2	4	2	2	11	9	8	5	4	3
2015	SIO2	25th Percentile	2	3	2	1	9		12	6	4	6
2004-2014	SIO2	Median	4	6	4	3	16	17	14	8	5	5
2015	SIO2	Median	4	5	2	3	10		17	8	5	6
2004-2014	SIO2	75th Percentile	5	9	6	5	21	23	19	11	8	6
2015	SIO2	75th Percentile	7	12	8	7	15		20	17	10	7
2004-2014	SIO2	Count	56	74	58	59	120	33	73	91	90	102
2015	SIO2	Count	6	6	5	6	11	0	6	7	7	7

PERIOD	PARAMETER	STATISTIC	LOXA111	LOXA112	LOXA113	LOXA114	LOXA115	LOXA116	LOXA117	LOXA118	LOXA119	LOXA120
2004-2014	SO4	Mean	0.9	2.7	0.5	0.3	49.6	33.0	13.1	3.6	0.7	0.2
2015	SO4	Mean	0.8	3.6	0.5	0.5	43.2		19.9	8.9	0.6	0.5
2004-2014	SO4	Variance	4.4	19.8	0.4	0.0	519.2	587.3	182.5	21.6	0.3	0.0
2015	SO4	Variance	0.2	13.8	0.3	0.3	193.7		303.2	112.7	0.2	0.3
2004-2014	SO4	25th Percentile	0.5	0.7	0.2	0.1	35.4	14.7	2.8	1.0	0.5	0.1
2015	SO4	25th Percentile	0.7	0.9	0.2	0.2	27.7		4.5	1.3	0.2	0.2
2004-2014	SO4	Median	0.6	1.1	0.4	0.2	48.5	23.6	7.4	1.6	0.6	0.2
2015	SO4	Median	0.8	1.1	0.2	0.2	44.2		17.6	2.8	0.7	0.2
2004-2014	SO4	75th Percentile	0.8	2.5	0.6	0.5	65.5	50.8	19.8	4.6	0.8	0.2
2015	SO4	75th Percentile	0.8	7.6	0.3	0.7	52.3		28.9	15.1	0.7	0.8
2004-2014	SO4	Count	90	94	94	92	120	34	100	104	107	113
2015	SO4	Count	7	8	8	10	12	0	8	8	10	11
2004-2014	TDEPTH	Mean	24	28	25	24	120	49	27	32	32	35
2015	TDEPTH	Mean	33	36	33	29	NA		36	39	34	34
2004-2014	TDEPTH	Variance	1	1	1	1	9	7	1	1	2	2
2015	TDEPTH	Variance	1	1	2	2	NA		3	1	2	3
2004-2014	TDEPTH	25th Percentile	17	19	17	16	130	30	19	25	22	27
2015	TDEPTH	25th Percentile	28	29	24	16	NA		24	32	23	21
2004-2014	TDEPTH	Median	21	26	21	23	130	42	25	30	30	33
2015	TDEPTH	Median	32	39	33	31	NA		34	39	34	34
2004-2014	TDEPTH	75th Percentile	31	35	31	31	130	63	35	40	41	44
2015	TDEPTH	75th Percentile	36	46	40	37	NA		47	48	47	47
2004-2014	TDEPTH	Count	88	93	91	92	9	29	95	96	94	99
2015	TDEPTH	Count	7	8	8	10	0	0	8	8	10	11
2004-2014	TDOC	Mean	29	46	24	20	177	169	101	52	30	20
2015	TDOC	Mean	27	51	23	19	169		99	44	28	20
2004-2014	TDOC	Variance	99	431	59	41	2510	3803	1817	777	83	47
2015	TDOC	Variance	34	229	27	9	1543		1377	137	61	18
2004-2014	TDOC	25th Percentile	23	33	17	15	140	141	69	31	25	16
2015	TDOC	25th Percentile	23	41	21	17	148		74	36	23	17
2004-2014	TDOC	Median	28	40	24	20	176	176	97	43	30	18
2015	TDOC	Median	28	44	24	19	168		80	46	30	21
2004-2014	TDOC	75th Percentile	33	53	28	26	204	216	130	66	37	25
2015	TDOC	75th Percentile	30	60	27	21	181		135	52	35	22
2004-2014	TDOC	Count	41	58	43	45	99	34	57	70	68	81
2015	TDOC	Count	9	7	8	6	12	0	9	12	11	12

PERIOD	PARAMETER	STATISTIC	LOXA111	LOXA112	LOXA113	LOXA114	LOXA115	LOXA116	LOXA117	LOXA118	LOXA119	LOXA120
2004-2014	TDS	Mean	97	147	92	89	494	446	298	153	104	99
2015	TDS	Mean	92	158	89	81	468		344	213	118	107
2004-2014	TDS	Variance	1597	4883	806	654	22195	37694	19444	6811	773	939
2015	TDS	Variance	552	9204	474	244	6282		20176	18562	305	343
2004-2014	TDS	25th Percentile	72	101	72	72	410	341	168	97	84	78
2015	TDS	25th Percentile	81	100	77	79	384		226	113	107	94
2004-2014	TDS	Median	89	126	88	89	500	450	280	122	96	94
2015	TDS	Median	96	108	94	85	500		355	126	115	101
2004-2014	TDS	75th Percentile	113	184	106	100	600	560	410	186	120	111
2015	TDS	75th Percentile	99	224	107	91	516		468	321	129	115
2004-2014	TDS	Count	56	74	58	59	121	34	73	92	90	103
2015	TDS	Count	6	6	5	6	11	0	6	7	7	7
2004-2014	TOC	Mean	17	20	18	18	29	29	26	19	19	18
2015	TOC	Mean	15	18	16	17	23		23	18	17	18
2004-2014	TOC	Variance	18	25	20	20	45	39	35	33	32	18
2015	TOC	Variance	5	6	7	6	4		17	13	5	12
2004-2014	TOC	25th Percentile	14	16	15	16	24	26	22	15	15	15
2015	TOC	25th Percentile	14	16	15	16	22		21	16	17	16
2004-2014	TOC	Median	16	18	16	18	30	30	26	18	18	17
2015	TOC	Median	16	18	16	18	23		24	18	18	18
2004-2014	TOC	75th Percentile	19	21	20	20	34	33	30	21	20	20
2015	TOC	75th Percentile	17	19	18	19	24		26	22	18	19
2004-2014	TOC	Count	55	73	57	59	119	33	71	90	88	101
2015	TOC	Count	7	7	6	7	12	0	7	8	8	8
2004-2014	DO	Mean	4.0	2.9	4.4	3.8	4.9	1.4	1.9	2.8	4.5	5.5
2015	DO	Mean	3.5	1.8	4.6	4.7	4.8		1.1	2.2	3.8	3.9
2004-2014	DO	Variance	3.4	2.3	3.6	3.8	3.1	0.6	2.3	2.0	3.3	4.5
2015	DO	Variance	2.9	1.5	3.2	3.2	1.5		0.7	1.4	2.8	1.5
2004-2014	DO	25th Percentile	2.8	1.7	2.9	2.3	3.9	0.7	1.0	1.8	3.4	4.0
2015	DO	25th Percentile	3.0	0.7	3.7	3.7	4.0		0.8	1.6	2.6	2.8
2004-2014	DO	Median	3.7	2.6	4.0	3.5	5.0	1.4	1.5	2.6	4.4	5.5
2015	DO	Median	3.3	1.9	5.1	4.6	5.1		1.1	2.3	3.6	3.8
2004-2014	DO	75th Percentile	4.9	3.8	5.5	4.9	6.2	1.9	2.2	3.5	5.7	7.0
2015	DO	75th Percentile	4.7	2.8	5.8	6.0	5.9		1.3	2.6	5.0	4.9
2004-2014	DO	Count	90	94	94	94	117	32	98	103	105	111
2015	DO	Count	7	8	8	10	12	0	8	8	10	11

PERIOD	PARAMETER	STATISTIC	LOXA111	LOXA112	LOXA113	LOXA114	LOXA115	LOXA116	LOXA117	LOXA118	LOXA119	LOXA120
2004-2014	OPO4	Mean	0.004	0.006	0.004	0.004	0.017	0.020	0.007	0.005	0.005	0.004
2015	OPO4	Mean	0.004	0.003	0.003	0.003	0.008		0.006	0.005	0.006	0.007
2004-2014	OPO4	Variance	0.000	0.000	0.000	0.000	0.001	0.001	0.000	0.000	0.000	0.000
2015	OPO4	Variance	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000
2004-2014	OPO4	25th Percentile	0.002	0.003	0.002	0.002	0.004	0.004	0.003	0.002	0.002	0.002
2015	OPO4	25th Percentile	0.002	0.003	0.002	0.002	0.005		0.004	0.004	0.002	0.003
2004-2014	OPO4	Median	0.003	0.003	0.003	0.003	0.007	0.007	0.004	0.003	0.003	0.003
2015	OPO4	Median	0.003	0.004	0.002	0.002	0.006		0.005	0.004	0.003	0.004
2004-2014	OPO4	75th Percentile	0.004	0.004	0.004	0.004	0.015	0.013	0.006	0.004	0.004	0.004
2015	OPO4	75th Percentile	0.005	0.004	0.003	0.003	0.008		0.007	0.005	0.004	0.004
2004-2014	OPO4	Count	55	71	57	59	116	30	72	89	88	99
2015	OPO4	Count	7	7	6	7	12	0	7	8	8	8
2004-2014	PH	Mean	6.6	6.7	6.7	6.6	7.6	7.1	6.8	6.6	6.7	6.7
2015	PH	Mean	6.5	6.6	6.5	6.4	7.6		6.8	6.6	6.6	6.4
2004-2014	PH	Variance	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.2	0.2
2015	PH	Variance	0.1	0.0	0.0	0.0	0.0		0.1	0.1	0.0	0.0
2004-2014	PH	25th Percentile	6.3	6.4	6.4	6.3	7.4	7.0	6.5	6.4	6.4	6.4
2015	PH	25th Percentile	6.4	6.5	6.5	6.3	7.5		6.6	6.3	6.5	6.4
2004-2014	PH	Median	6.5	6.6	6.6	6.5	7.6	7.2	6.8	6.6	6.6	6.6
2015	PH	Median	6.5	6.5	6.5	6.4	7.6		6.8	6.6	6.6	6.5
2004-2014	PH	75th Percentile	6.8	6.9	6.9	6.9	7.8	7.2	7.0	6.9	6.9	7.0
2015	PH	75th Percentile	6.5	6.7	6.7	6.4	7.7		7.0	6.9	6.7	6.5
2004-2014	PH	Count	92	97	98	98	119	33	99	104	106	112
2015	PH	Count	7	8	8	10	12	0	8	8	10	11
2004-2014	SPCOND	Mean	137	201	130	115	776	682	417	223	133	129
2015	SPCOND	Mean	125	247	111	110	772		505	330	149	145
2004-2014	SPCOND	Variance	10646	15084	8347	1356	51498	79141	47661	18416	2633	2837
2015	SPCOND	Variance	912	25921	431	744	15164		51867	48369	1449	3806
2004-2014	SPCOND	25th Percentile	93	119	89	90	651	556	233	125	102	98
2015	SPCOND	25th Percentile	99	131	102	91	628		272	157	122	103
2004-2014	SPCOND	Median	116	151	114	112	792	700	380	173	120	114
2015	SPCOND	Median	133	147	111	105	812		543	238	135	116
2004-2014	SPCOND	75th Percentile	150	250	140	129	953	861	601	276	155	146
2015	SPCOND	75th Percentile	146	424	120	120	842		653	505	177	174
2004-2014	SPCOND	Count	91	97	97	97	119	33	99	104	104	110
2015	SPCOND	Count	7	8	8	10	12	0	8	8	10	11

PERIOD	PARAMETER	STATISTIC	LOXA111	LOXA112	LOXA113	LOXA114	LOXA115	LOXA116	LOXA117	LOXA118	LOXA119	LOXA120
2004-2014	TEMP	Mean	23	24	24	24	25	23	23	23	24	25
2015	TEMP	Mean	24	24	25	25	27		24	24	26	26
2004-2014	TEMP	Variance	20	20	21	19	16	16	19	19	20	17
2015	TEMP	Variance	27	16	24	17	15		21	19	20	19
2004-2014	TEMP	25th Percentile	20	21	21	21	22	20	20	21	22	22
2015	TEMP	25th Percentile	21	21	22	23	24		22	23	24	24
2004-2014	TEMP	Median	23	24	24	25	26	22	22	23	24	25
2015	TEMP	Median	23	23	24	26	28		23	23	26	27
2004-2014	TEMP	75th Percentile	27	28	28	27	29	27	26	27	28	28
2015	TEMP	75th Percentile	29	27	29	28	29		27	27	27	29
2004-2014	TEMP	Count	92	97	98	98	119	34	99	104	106	112
2015	TEMP	Count	7	8	8	10	12	0	8	8	10	11
2004-2014	TN	Mean	1.0	1.1	1.0	1.0	1.8	2.0	1.2	0.9	1.1	1.2
2015	TN	Mean	0.9	1.0	1.0	1.1	1.4		1.3	1.1	1.0	1.1
2004-2014	TN	Variance	0.1	0.1	0.1	0.1	0.3	0.4	0.1	0.1	0.7	0.6
2015	TN	Variance	0.0	0.0	0.1	0.1	0.0		0.1	0.1	0.0	0.1
2004-2014	TN	25th Percentile	0.8	0.9	0.9	0.9	1.5	1.7	1.0	0.8	0.8	0.9
2015	TN	25th Percentile	0.7	0.9	0.9	0.8	1.3		1.1	0.9	1.0	0.9
2004-2014	TN	Median	0.9	1.0	1.0	1.0	1.8	2.0	1.1	0.9	1.0	1.1
2015	TN	Median	1.0	1.0	1.0	1.2	1.4		1.2	1.0	1.0	1.2
2004-2014	TN	75th Percentile	1.0	1.2	1.1	1.2	2.0	2.2	1.5	1.0	1.2	1.3
2015	TN	75th Percentile	1.0	1.1	1.3	1.2	1.5		1.5	1.2	1.1	1.3
2004-2014	TN	Count	56	74	58	59	120	33	72	91	90	103
2015	TN	Count	7	7	6	7	12	0	7	8	8	8

PERIOD	PARAMETER	STATISTIC	LOXA111	LOXA112	LOXA113	LOXA114	LOXA115	LOXA116	LOXA117	LOXA118	LOXA119	LOXA120
2004-2014	TP	Mean	0.008	0.008	0.007	0.007	0.040	0.056	0.015	0.009	0.010	0.009
2015	TP	Mean	0.010	0.009	0.009	0.010	0.020		0.014	0.011	0.009	0.010
2004-2014	TP	Variance	0.000	0.000	0.000	0.000	0.001	0.002	0.000	0.000	0.000	0.000
2015	TP	Variance	0.000	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000
2004-2014	TP	25th Percentile	0.004	0.006	0.004	0.004	0.021	0.024	0.010	0.006	0.005	0.005
2015	TP	25th Percentile	0.007	0.007	0.007	0.008	0.017		0.011	0.010	0.005	0.007
2004-2014	TP	Median	0.006	0.008	0.006	0.006	0.029	0.047	0.014	0.008	0.007	0.006
2015	TP	Median	0.009	0.010	0.008	0.009	0.020		0.012	0.011	0.009	0.010
2004-2014	TP	75th Percentile	0.009	0.010	0.008	0.008	0.045	0.073	0.018	0.010	0.009	0.008
2015	TP	75th Percentile	0.010	0.011	0.010	0.012	0.022		0.015	0.014	0.012	0.011
2004-2014	TP	Count	92	97	98	97	122	34	101	107	109	114
2015	TP	Count	7	8	8	10	12	0	8	8	10	11
2004-2014	TSS	Mean	4.6	3.8	3.8	3.8	4.8	10.1	3.8	4.2	4.7	6.0
2015	TSS	Mean	5.0	5.0	5.0	5.0	5.0	0.0	5.0	5.0	5.0	5.0
2004-2014	TSS	Variance	20.4	2.1	2.7	3.1	16.3	140.5	4.3	19.1	75.2	264.7
2015	TSS	Variance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2004-2014	TSS	25th Percentile	2.6	2.5	2.0	2.0	3.0	3.0	2.0	2.0	2.0	2.0
2015	TSS	25th Percentile	5.0	5.0	5.0	5.0	5.0	0.0	5.0	5.0	5.0	5.0
2004-2014	TSS	Median	5.0	5.0	5.0	5.0	5.0	3.8	5.0	4.8	4.5	4.5
2015	TSS	Median	5.0	5.0	5.0	5.0	5.0	0.0	5.0	5.0	5.0	5.0
2004-2014	TSS	75th Percentile	5.0	5.0	5.0	5.0	5.0	11.0	5.0	5.0	5.0	5.0
2015	TSS	75th Percentile	5.0	5.0	5.0	5.0	5.0	0.0	5.0	5.0	5.0	5.0
2004-2014	TSS	Count	86	92	85	87	120	34	90	98	99	108
2015	TSS	Count	6	7	7	9	11	0	7	7	9	10

PERIOD	PARAMETER	STATISTIC	LOXA121	LOXA122	LOXA123	LOXA124	LOXA126	LOXA127	LOXA128	LOXA129	LOXA130
2004-2014	ALK	Mean	204	115	132	38	80	20	18	159	97
2015	ALK	Mean		117		50	101	21	19	159	121
2004-2014	ALK	Variance	537	2665	1998	278	1761	73	97	1927	1717
2015	ALK	Variance		808		436	4756	30	29	784	2113
2004-2014	ALK	25th Percentile	193	77	112	27	45	15	13	130	66
2015	ALK	25th Percentile		96		39	40	17	17	146	88
2004-2014	ALK	Median	200	114	119	35	69	18	15	150	85
2015	ALK	Median		112		43	84	22	22	160	93
2004-2014	ALK	75th Percentile	216	152	133	43	103	23	20	191	129
2015	ALK	75th Percentile		139		54	163	24	22	179	159
2004-2014	ALK	Count	5	75	9	72	86	68	44	121	89
2015	ALK	Count	0	6	0	4	6	6	5	11	7
2004-2014	CA	Mean	67	37	41	16	27	8	6	56	33
2015	CA	Mean		36		16	35	7	6	57	39
2004-2014	CA	Variance	84	321	236	59	238	7	2	273	224
2015	CA	Variance		98		39	524	1	2	61	158
2004-2014	CA	25th Percentile	66	22	34	11	14	6	5	44	21
2015	CA	25th Percentile		29		13	13	7	5	49	33
2004-2014	CA	Median	68	35	36	14	23	7	5	54	29
2015	CA	Median		33		14	39	8	6	57	33
2004-2014	CA	75th Percentile	73	48	39	18	37	8	7	67	41
2015	CA	75th Percentile		43		17	52	8	7	65	43
2004-2014	CA	Count	5	75	10	72	86	68	43	121	88
2015	CA	Count	0	7	0	5	7	7	6	12	7
2004-2014	CL	Mean	100	56	65	33	53	22	19	101	59
2015	CL	Mean		69		42	56	23	18	146	88
2004-2014	CL	Variance	1609	989	858	427	1010	79	43	1982	1111
2015	CL	Variance		500		419	1543	34	39	2318	500
2004-2014	CL	25th Percentile	78	27	60	18	26	16	14	68	30
2015	CL	25th Percentile		52		23	24	19	14	106	73
2004-2014	CL	Median	98	53	66	28	47	20	19	99	49
2015	CL	Median		64		42	35	22	16	136	87
2004-2014	CL	75th Percentile	125	80	67	39	76	27	23	123	85
2015	CL	75th Percentile		84		57	83	25	18	196	100
2004-2014	CL	Count	10	98	13	102	102	96	88	121	104
2015	CL	Count	0	8	0	7	10	10	8	12	11

PERIOD	PARAMETER	STATISTIC	LOXA121	LOXA122	LOXA123	LOXA124	LOXA126	LOXA127	LOXA128	LOXA129	LOXA130
2004-2014	DCS	Mean	NA	39	NA	46	44	40	31	106	37
2015	DCS	Mean		45		50	45	43	40	1	37
2004-2014	DCS	Variance	NA	168	NA	202	167	161	129	1872	190
2015	DCS	Variance		177		265	321	258	95		223
2004-2014	DCS	25th Percentile	NA	29	NA	36	35	32	24	124	27
2015	DCS	25th Percentile		37		41	32	32	35	1	24
2004-2014	DCS	Median	NA	37	NA	43	43	39	29	124	34
2015	DCS	Median		45		46	49	45	42	1	38
2004-2014	DCS	75th Percentile	NA	47	NA	56	51	49	39	124	45
2015	DCS	75th Percentile		53		62	58	55	44	1	48
2004-2014	DCS	Count		81		87	81	75	75	98	90
2015	DCS	Count	0	8	0	7	10	10	8	12	11
2004-2014	SIO2	Mean	16	12	15	5	8	6	4	10	8
2015	SIO2	Mean		14		10	8	8	4	8	11
2004-2014	SIO2	Variance	22	28	11	11	31	7	5	23	25
2015	SIO2	Variance		18		22	57	18	11	6	21
2004-2014	SIO2	25th Percentile	15	9	13	3	4	4	2	6	4
2015	SIO2	25th Percentile		12		8	2	5	1	6	9
2004-2014	SIO2	Median	17	12	15	4	6	6	3	9	8
2015	SIO2	Median		13		11	7	6	2	7	11
2004-2014	SIO2	75th Percentile	20	16	16	7	11	7	4	12	12
2015	SIO2	75th Percentile		17		14	14	11	6	9	14
2004-2014	SIO2	Count	5	75	9	72	86	68	44	121	89
2015	SIO2	Count	0	6	0	4	6	6	5	11	7

PERIOD	PARAMETER	STATISTIC	LOXA121	LOXA122	LOXA123	LOXA124	LOXA126	LOXA127	LOXA128	LOXA129	LOXA130
2004-2014	SO4	Mean	48.0	11.0	17.3	1.3	7.4	0.4	0.2	28.7	6.5
2015	SO4	Mean		12.4		1.6	10.2	0.4	0.4	38.4	7.8
2004-2014	SO4	Variance	612.2	162.8	207.3	5.6	109.6	0.7	0.0	416.9	80.5
2015	SO4	Variance		114.3		3.0	202.9	0.3	0.4	216.3	89.8
2004-2014	SO4	25th Percentile	39.9	2.3	10.3	0.4	1.0	0.1	0.1	13.0	1.2
2015	SO4	25th Percentile		4.3		0.4	0.9	0.2	0.2	31.9	2.1
2004-2014	SO4	Median	45.3	6.5	13.8	0.5	2.3	0.2	0.2	23.0	2.4
2015	SO4	Median		9.5		0.9	1.9	0.2	0.2	35.1	2.9
2004-2014	SO4	75th Percentile	48.6	15.3	18.1	0.9	9.0	0.4	0.2	40.7	6.5
2015	SO4	75th Percentile		17.3		2.9	13.8	0.2	0.2	43.9	10.7
2004-2014	SO4	Count	10	98	13	102	102	95	88	121	104
2015	SO4	Count	0	8	0	6	10	10	7	12	11
2004-2014	TDEPTH	Mean	21	28	29	29	31	27	21	108	31
2015	TDEPTH	Mean		34		30	36	34	29	NA	31
2004-2014	TDEPTH	Variance	1	1	3	2	1	1	1	21	1
2015	TDEPTH	Variance		2		1	3	3	1	NA	2
2004-2014	TDEPTH	25th Percentile	14	19	14	19	23	19	14	130	23
2015	TDEPTH	25th Percentile		29		20	21	20	21	NA	19
2004-2014	TDEPTH	Median	15	27	28	27	32	25	19	130	28
2015	TDEPTH	Median		35		34	36	36	31	NA	30
2004-2014	TDEPTH	75th Percentile	29	35	39	38	37	34	25	130	36
2015	TDEPTH	75th Percentile		39		37	50	42	34	NA	40
2004-2014	TDEPTH	Count	11	99	14	99	99	94	80	10	93
2015	TDEPTH	Count	0	8	0	7	10	10	8	0	11
2004-2014	TDOC	Mean	204	122	132	39	84	21	17	156	97
2015	TDOC	Mean		79		39	57	20	23	152	76
2004-2014	TDOC	Variance	537	2921	1998	292	1766	89	100	1825	1767
2015	TDOC	Variance		832		49	1672	17	131	2096	438
2004-2014	TDOC	25th Percentile	193	83	112	28	51	14	13	123	65
2015	TDOC	25th Percentile		62		34	34	16	16	122	59
2004-2014	TDOC	Median	200	120	119	35	72	20	15	146	82
2015	TDOC	Median		77		35	45	21	22	145	82
2004-2014	TDOC	75th Percentile	216	160	133	46	112	23	18	188	124
2015	TDOC	75th Percentile		89		40	47	23	25	185	89
2004-2014	TDOC	Count	5	60	9	60	66	50	35	99	69
2015	TDOC	Count	0	8	0	5	11	9	5	11	11

PERIOD	PARAMETER	STATISTIC	LOXA121	LOXA122	LOXA123	LOXA124	LOXA126	LOXA127	LOXA128	LOXA129	LOXA130
2004-2014	TDS	Mean	496	288	338	132	233	101	88	430	260
2015	TDS	Mean		320		181	273	112	91	510	351
2004-2014	TDS	Variance	2010	18447	19902	3141	13835	719	464	19884	12732
2015	TDS	Variance		7330		3992	33057	330	350	8503	10243
2004-2014	TDS	25th Percentile	478	171	279	94	129	84	73	320	169
2015	TDS	25th Percentile		241		167	119	102	82	428	284
2004-2014	TDS	Median	503	278	303	120	216	99	85	420	230
2015	TDS	Median		319		193	238	117	93	490	302
2004-2014	TDS	75th Percentile	506	387	331	151	308	120	100	533	346
2015	TDS	75th Percentile		385		206	438	126	94	595	421
2004-2014	TDS	Count	5	75	10	72	86	68	44	121	89
2015	TDS	Count	0	6	0	4	6	6	5	11	7
2004-2014	TOC	Mean	31	25	24	19	21	20	20	25	23
2015	TOC	Mean		24		18	19	19	19	22	26
2004-2014	TOC	Variance	3	30	16	12	22	19	31	35	32
2015	TOC	Variance		8		8	15	8	15	20	25
2004-2014	TOC	25th Percentile	30	21	22	16	17	16	16	21	19
2015	TOC	25th Percentile		22		16	17	18	16	21	23
2004-2014	TOC	Median	31	25	23	18	21	20	18	25	22
2015	TOC	Median		24		16	18	19	19	22	25
2004-2014	TOC	75th Percentile	31	29	26	20	24	23	22	29	28
2015	TOC	75th Percentile		25		21	21	21	21	26	29
2004-2014	TOC	Count	5	73	10	72	86	68	44	121	89
2015	TOC	Count	0	7	0	5	7	7	6	12	7
2004-2014	DO	Mean	0.9	1.8	1.6	2.1	3.3	3.9	4.6	3.8	2.2
2015	DO	Mean		0.6		1.3	3.0	4.3	5.0	4.2	1.6
2004-2014	DO	Variance	0.4	2.5	1.4	2.0	4.0	4.5	4.4	3.5	2.1
2015	DO	Variance		0.4		1.5	2.8	4.9	3.6	1.4	3.0
2004-2014	DO	25th Percentile	0.5	0.9	0.8	1.0	1.8	2.2	3.3	2.4	1.1
2015	DO	25th Percentile		0.1		0.2	1.8	2.7	4.1	3.4	0.8
2004-2014	DO	Median	0.7	1.4	1.1	1.8	2.9	3.6	4.4	3.5	2.0
2015	DO	Median		0.2		1.3	2.5	4.4	5.1	4.3	1.2
2004-2014	DO	75th Percentile	1.0	2.1	2.1	2.5	4.2	4.9	5.9	5.2	2.8
2015	DO	75th Percentile		1.0		2.0	4.2	6.0	6.5	5.0	1.7
2004-2014	DO	Count	10	98	12	97	99	93	87	117	100
2015	DO	Count	0	8	0	7	10	10	8	12	11

PERIOD	PARAMETER	STATISTIC	LOXA121	LOXA122	LOXA123	LOXA124	LOXA126	LOXA127	LOXA128	LOXA129	LOXA130
2004-2014	OPO4	Mean	0.039	0.005	0.004	0.008	0.005	0.005	0.005	0.019	0.007
2015	OPO4	Mean		0.005		0.011	0.007	0.004	0.002	0.004	0.004
2004-2014	OPO4	Variance	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.000
2015	OPO4	Variance		0.000		0.000	0.000	0.000	0.000	0.000	0.000
2004-2014	OPO4	25th Percentile	0.014	0.003	0.004	0.003	0.002	0.002	0.002	0.004	0.002
2015	OPO4	25th Percentile		0.004		0.004	0.003	0.003	0.002	0.003	0.002
2004-2014	OPO4	Median	0.022	0.003	0.004	0.004	0.003	0.003	0.003	0.007	0.003
2015	OPO4	Median		0.005		0.007	0.004	0.003	0.002	0.004	0.003
2004-2014	OPO4	75th Percentile	0.039	0.005	0.005	0.005	0.004	0.005	0.004	0.015	0.004
2015	OPO4	75th Percentile		0.006		0.020	0.010	0.005	0.003	0.005	0.005
2004-2014	OPO4	Count	5	74	10	68	83	65	45	116	86
2015	OPO4	Count	0	7	0	5	7	7	6	12	7
2004-2014	PH	Mean	7.0	6.8	7.1	6.6	6.9	6.7	6.5	7.3	6.7
2015	PH	Mean		6.7		6.3	6.8	6.4	6.4	7.5	6.9
2004-2014	PH	Variance	0.0	0.1	0.0	0.2	0.2	0.2	0.1	0.3	0.3
2015	PH	Variance		0.0		0.0	0.1	0.0	0.1	0.0	0.1
2004-2014	PH	25th Percentile	7.0	6.6	6.9	6.2	6.7	6.3	6.2	7.2	6.6
2015	PH	25th Percentile		6.7		6.2	6.6	6.4	6.3	7.4	6.7
2004-2014	PH	Median	7.1	6.8	7.1	6.5	6.9	6.5	6.4	7.3	6.8
2015	PH	Median		6.8		6.3	6.8	6.5	6.4	7.5	6.9
2004-2014	PH	75th Percentile	7.1	7.1	7.2	6.9	7.1	6.9	6.7	7.5	6.9
2015	PH	75th Percentile		6.8		6.4	7.0	6.6	6.6	7.6	7.0
2004-2014	PH	Count	10	99	13	100	101	95	89	120	103
2015	PH	Count	0	8	0	7	10	10	8	12	11
2004-2014	SPCOND	Mean	777	424	487	192	341	122	108	692	397
2015	SPCOND	Mean		471		224	376	123	103	856	531
2004-2014	SPCOND	Variance	76255	46420	34917	10925	37664	1246	742	49433	35431
2015	SPCOND	Variance		20751		10622	66245	631	857	29175	24192
2004-2014	SPCOND	25th Percentile	666	242	444	121	174	98	88	526	239
2015	SPCOND	25th Percentile		337		133	173	105	85	731	445
2004-2014	SPCOND	Median	791	384	484	162	301	112	108	678	348
2015	SPCOND	Median		461		211	233	118	95	793	502
2004-2014	SPCOND	75th Percentile	914	580	497	224	467	144	125	848	538
2015	SPCOND	75th Percentile		572		293	535	132	106	1044	576
2004-2014	SPCOND	Count	11	100	14	100	102	95	87	122	103
2015	SPCOND	Count	0	8	0	7	10	10	8	12	11

PERIOD	PARAMETER	STATISTIC	LOXA121	LOXA122	LOXA123	LOXA124	LOXA126	LOXA127	LOXA128	LOXA129	LOXA130
2004-2014	TEMP	Mean	22	23	24	23	24	24	25	25	24
2015	TEMP	Mean		24		23	25	25	25	27	24
2004-2014	TEMP	Variance	26	17	19	20	21	22	20	18	22
2015	TEMP	Variance		15		16	15	16	20	13	14
2004-2014	TEMP	25th Percentile	17	20	21	20	21	22	22	23	21
2015	TEMP	25th Percentile		22		22	23	24	23	24	22
2004-2014	TEMP	Median	24	23	26	23	24	25	25	26	24
2015	TEMP	Median		25		22	25	26	25	29	26
2004-2014	TEMP	75th Percentile	26	27	28	27	27	28	28	29	28
2015	TEMP	75th Percentile		26		27	27	28	28	30	27
2004-2014	TEMP	Count	11	100	14	101	103	97	89	121	104
2015	TEMP	Count	0	8	0	7	10	10	8	12	11
2004-2014	TN	Mean	2.1	1.2	1.5	0.9	1.2	1.2	1.2	1.7	1.2
2015	TN	Mean		1.2		0.9	1.2	1.3	1.3	1.4	1.4
2004-2014	TN	Variance	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.1
2015	TN	Variance		0.1		0.1	0.1	0.1	0.1	0.1	0.1
2004-2014	TN	25th Percentile	1.9	1.0	1.4	0.8	1.0	1.0	0.9	1.3	0.9
2015	TN	25th Percentile		1.0		0.7	1.0	1.0	1.0	1.3	1.1
2004-2014	TN	Median	2.0	1.1	1.4	0.9	1.2	1.2	1.1	1.5	1.1
2015	TN	Median		1.2		0.9	1.2	1.4	1.2	1.3	1.2
2004-2014	TN	75th Percentile	2.2	1.3	1.7	1.0	1.4	1.4	1.2	2.0	1.4
2015	TN	75th Percentile		1.4		1.1	1.5	1.5	1.5	1.5	1.6
2004-2014	TN	Count	4	74	9	72	86	68	44	121	89
2015	TN	Count	0	7	0	5	7	7	6	12	7

PERIOD	PARAMETER	STATISTIC	LOXA121	LOXA122	LOXA123	LOXA124	LOXA126	LOXA127	LOXA128	LOXA129	LOXA130
2004-2014	TP	Mean	0.083	0.012	0.015	0.017	0.010	0.007	0.007	0.055	0.015
2015	TP	Mean		0.015		0.024	0.008	0.008	0.008	0.021	0.019
2004-2014	TP	Variance	0.002	0.000	0.000	0.001	0.000	0.000	0.000	0.003	0.000
2015	TP	Variance		0.000		0.000	0.000	0.000	0.000	0.000	0.000
2004-2014	TP	25th Percentile	0.050	0.009	0.009	0.008	0.006	0.005	0.004	0.027	0.008
2015	TP	25th Percentile		0.012		0.015	0.005	0.006	0.007	0.016	0.010
2004-2014	TP	Median	0.068	0.012	0.013	0.013	0.008	0.007	0.005	0.039	0.011
2015	TP	Median		0.014		0.019	0.009	0.009	0.008	0.018	0.013
2004-2014	TP	75th Percentile	0.111	0.015	0.016	0.018	0.012	0.008	0.007	0.068	0.015
2015	TP	75th Percentile		0.017		0.028	0.011	0.010	0.008	0.023	0.019
2004-2014	TP	Count	10	100	14	106	102	97	88	121	108
2015	TP	Count	0	8	0	7	10	10	8	12	11
2004-2014	TSS	Mean	14.8	3.7	5.1	4.0	3.7	3.8	4.3	6.7	3.6
2015	TSS	Mean	0.0	5.0	0.0	5.0	5.0	5.0	5.0	5.0	5.0
2004-2014	TSS	Variance	316.2	4.4	44.1	6.8	2.4	2.1	10.9	18.8	2.4
2015	TSS	Variance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2004-2014	TSS	25th Percentile	3.0	2.0	3.0	2.0	2.0	2.5	2.0	5.0	2.0
2015	TSS	25th Percentile	0.0	5.0	0.0	5.0	5.0	5.0	5.0	5.0	5.0
2004-2014	TSS	Median	3.0	4.5	3.0	4.0	4.0	5.0	5.0	5.0	4.0
2015	TSS	Median	0.0	5.0	0.0	5.0	5.0	5.0	5.0	5.0	5.0
2004-2014	TSS	75th Percentile	22.0	5.0	3.0	5.0	5.0	5.0	5.0	7.0	5.0
2015	TSS	75th Percentile	0.0	5.0	0.0	5.0	5.0	5.0	5.0	5.0	5.0
2004-2014	TSS	Count	5	91	10	98	98	89	80	120	101
2015	TSS	Count	0	7	0	6	9	9	7	11	10

PERIOD	PARAMETER	STATISTIC	LOXA131
2004-2014	ALK	Mean	51
2015	ALK	Mean	72
2004-2014	ALK	Variance	786
2015	ALK	Variance	1379
2004-2014	ALK	25th Percentile	35
2015	ALK	25th Percentile	47
2004-2014	ALK	Median	45
2015	ALK	Median	56
2004-2014	ALK	75th Percentile	59
2015	ALK	75th Percentile	93
2004-2014	ALK	Count	84
2015	ALK	Count	7
2004-2014	CA	Mean	17
2015	CA	Mean	23
2004-2014	CA	Variance	49
2015	CA	Variance	106
2004-2014	CA	25th Percentile	12
2015	CA	25th Percentile	17
2004-2014	CA	Median	15
2015	CA	Median	20
2004-2014	CA	75th Percentile	19
2015	CA	75th Percentile	25
2004-2014	CA	Count	84
2015	CA	Count	7
2004-2014	CL	Mean	34
2015	CL	Mean	58
2004-2014	CL	Variance	304
2015	CL	Variance	524
2004-2014	CL	25th Percentile	21
2015	CL	25th Percentile	43
2004-2014	CL	Median	31
2015	CL	Median	50
2004-2014	CL	75th Percentile	45
2015	CL	75th Percentile	69
2004-2014	CL	Count	101
2015	CL	Count	11

PERIOD	PARAMETER	STATISTIC	LOXA131
2004-2014	DCS	Mean	37
2015	DCS	Mean	36
2004-2014	DCS	Variance	169
2015	DCS	Variance	198
2004-2014	DCS	25th Percentile	26
2015	DCS	25th Percentile	25
2004-2014	DCS	Median	35
2015	DCS	Median	31
2004-2014	DCS	75th Percentile	44
2015	DCS	75th Percentile	47
2004-2014	DCS	Count	82
2015	DCS	Count	11
2004-2014	SIO2	Mean	7
2015	SIO2	Mean	7
2004-2014	SIO2	Variance	24
2015	SIO2	Variance	61
2004-2014	SIO2	25th Percentile	4
2015	SIO2	25th Percentile	1
2004-2014	SIO2	Median	7
2015	SIO2	Median	3
2004-2014	SIO2	75th Percentile	9
2015	SIO2	75th Percentile	12
2004-2014	SIO2	Count	84
2015	SIO2	Count	7

PERIOD	PARAMETER	STATISTIC	LOXA131
2004-2014	SO4	Mean	1.8
2015	SO4	Mean	3.2
2004-2014	SO4	Variance	11.1
2015	SO4	Variance	22.2
2004-2014	SO4	25th Percentile	0.5
2015	SO4	25th Percentile	0.8
2004-2014	SO4	Median	0.7
2015	SO4	Median	1.0
2004-2014	SO4	75th Percentile	1.4
2015	SO4	75th Percentile	2.7
2004-2014	SO4	Count	101
2015	SO4	Count	11
2004-2014	TDEPTH	Mean	30
2015	TDEPTH	Mean	31
2004-2014	TDEPTH	Variance	1
2015	TDEPTH	Variance	2
2004-2014	TDEPTH	25th Percentile	21
2015	TDEPTH	25th Percentile	20
2004-2014	TDEPTH	Median	29
2015	TDEPTH	Median	29
2004-2014	TDEPTH	75th Percentile	36
2015	TDEPTH	75th Percentile	37
2004-2014	TDEPTH	Count	91
2015	TDEPTH	Count	11
2004-2014	TDOC	Mean	52
2015	TDOC	Mean	47
2004-2014	TDOC	Variance	962
2015	TDOC	Variance	169
2004-2014	TDOC	25th Percentile	34
2015	TDOC	25th Percentile	35
2004-2014	TDOC	Median	44
2015	TDOC	Median	47
2004-2014	TDOC	75th Percentile	61
2015	TDOC	75th Percentile	58
2004-2014	TDOC	Count	64
2015	TDOC	Count	11

PERIOD	PARAMETER	STATISTIC	LOXA131
2004-2014	TDS	Mean	161
2015	TDS	Mean	244
2004-2014	TDS	Variance	3934
2015	TDS	Variance	7272
2004-2014	TDS	25th Percentile	115
2015	TDS	25th Percentile	187
2004-2014	TDS	Median	150
2015	TDS	Median	208
2004-2014	TDS	75th Percentile	199
2015	TDS	75th Percentile	293
2004-2014	TDS	Count	84
2015	TDS	Count	7
2004-2014	TOC	Mean	22
2015	TOC	Mean	26
2004-2014	TOC	Variance	36
2015	TOC	Variance	48
2004-2014	TOC	25th Percentile	18
2015	TOC	25th Percentile	22
2004-2014	TOC	Median	22
2015	TOC	Median	25
2004-2014	TOC	75th Percentile	26
2015	TOC	75th Percentile	30
2004-2014	TOC	Count	84
2015	TOC	Count	7
2004-2014	DO	Mean	4.6
2015	DO	Mean	3.5
2004-2014	DO	Variance	5.4
2015	DO	Variance	1.7
2004-2014	DO	25th Percentile	3.1
2015	DO	25th Percentile	2.6
2004-2014	DO	Median	4.0
2015	DO	Median	3.3
2004-2014	DO	75th Percentile	6.0
2015	DO	75th Percentile	3.7
2004-2014	DO	Count	96
2015	DO	Count	11

PERIOD	PARAMETER	STATISTIC	LOXA131
2004-2014	OPO4	Mean	0.005
2015	OPO4	Mean	0.006
2004-2014	OPO4	Variance	0.000
2015	OPO4	Variance	0.000
2004-2014	OPO4	25th Percentile	0.003
2015	OPO4	25th Percentile	0.004
2004-2014	OPO4	Median	0.003
2015	OPO4	Median	0.004
2004-2014	OPO4	75th Percentile	0.004
2015	OPO4	75th Percentile	0.006
2004-2014	OPO4	Count	81
2015	OPO4	Count	7
2004-2014	PH	Mean	6.8
2015	PH	Mean	7.0
2004-2014	PH	Variance	0.1
2015	PH	Variance	0.1
2004-2014	PH	25th Percentile	6.6
2015	PH	25th Percentile	6.9
2004-2014	PH	Median	6.7
2015	PH	Median	6.9
2004-2014	PH	75th Percentile	7.0
2015	PH	75th Percentile	7.0
2004-2014	PH	Count	99
2015	PH	Count	11
2004-2014	SPCOND	Mean	208
2015	SPCOND	Mean	337
2004-2014	SPCOND	Variance	9385
2015	SPCOND	Variance	19361
2004-2014	SPCOND	25th Percentile	135
2015	SPCOND	25th Percentile	259
2004-2014	SPCOND	Median	194
2015	SPCOND	Median	276
2004-2014	SPCOND	75th Percentile	257
2015	SPCOND	75th Percentile	376
2004-2014	SPCOND	Count	99
2015	SPCOND	Count	11

PERIOD	PARAMETER	STATISTIC	LOXA131
2004-2014	TEMP	Mean	24
2015	TEMP	Mean	24
2004-2014	TEMP	Variance	24
2015	TEMP	Variance	16
2004-2014	TEMP	25th Percentile	21
2015	TEMP	25th Percentile	22
2004-2014	TEMP	Median	25
2015	TEMP	Median	26
2004-2014	TEMP	75th Percentile	28
2015	TEMP	75th Percentile	27
2004-2014	TEMP	Count	100
2015	TEMP	Count	11
2004-2014	TN	Mean	1.3
2015	TN	Mean	1.6
2004-2014	TN	Variance	0.1
2015	TN	Variance	0.3
2004-2014	TN	25th Percentile	1.0
2015	TN	25th Percentile	1.2
2004-2014	TN	Median	1.2
2015	TN	Median	1.7
2004-2014	TN	75th Percentile	1.5
2015	TN	75th Percentile	1.9
2004-2014	TN	Count	84
2015	TN	Count	7

PERIOD	PARAMETER	STATISTIC	LOXA131
2004-2014	TP	Mean	0.007
2015	TP	Mean	0.008
2004-2014	TP	Variance	0.000
2015	TP	Variance	0.000
2004-2014	TP	25th Percentile	0.005
2015	TP	25th Percentile	0.007
2004-2014	TP	Median	0.007
2015	TP	Median	0.008
2004-2014	TP	75th Percentile	0.009
2015	TP	75th Percentile	0.009
2004-2014	TP	Count	99
2015	TP	Count	11
2004-2014	TSS	Mean	3.7
2015	TSS	Mean	5.1
2004-2014	TSS	Variance	3.8
2015	TSS	Variance	0.0
2004-2014	TSS	25th Percentile	2.0
2015	TSS	25th Percentile	5.0
2004-2014	TSS	Median	3.0
2015	TSS	Median	5.0
2004-2014	TSS	75th Percentile	5.0
2015	TSS	75th Percentile	5.0
2004-2014	TSS	Count	97
2015	TSS	Count	10

PERIOD	PARAMETER	STATISTIC	LOXA132	LOXA133	LOXA134	LOXA135	LOXA136	LOXA137	LOXA138	LOXA139	LOXA140	LOXA141
2004-2014	ALK	Mean	164	119	94	167	132	89	59	20	72	72
2015	ALK	Mean	169	159	155	179	168	146	103	32	118	88
2004-2014	ALK	Variance	1829	1544	1635	1915	2876	1965	1123	119	1163	1052
2015	ALK	Variance	501	1037	1387	589	471	1489	4328	288	3932	989
2004-2014	ALK	25th Percentile	131	88	63	133	88	53	34	14	49	46
2015	ALK	25th Percentile	159	138	129	162	152	116	59	22	62	65
2004-2014	ALK	Median	158	120	85	161	126	74	46	18	59	65
2015	ALK	Median	168	160	146	176	168	137	71	25	109	76
2004-2014	ALK	75th Percentile	190	148	120	195	176	128	78	23	88	95
2015	ALK	75th Percentile	184	182	177	193	182	178	158	41	174	112
2004-2014	ALK	Count	119	30	68	122	53	73	48	31	40	79
2015	ALK	Count	11	6	6	11	6	6	6	6	5	10
2004-2014	CA	Mean	57	39	32	60	44	31	20	9	25	25
2015	CA	Mean	60	54	53	62	57	50	39	15	43	26
2004-2014	CA	Variance	265	262	191	264	338	222	120	18	169	158
2015	CA	Variance	65	129	159	63	83	178	405	25	475	95
2004-2014	CA	25th Percentile	45	26	19	49	28	19	12	6	17	15
2015	CA	25th Percentile	52	47	43	56	51	39	23	11	25	19
2004-2014	CA	Median	54	40	29	56	42	27	16	7	20	25
2015	CA	Median	62	54	49	63	53	49	29	13	45	23
2004-2014	CA	75th Percentile	67	52	42	69	60	42	25	10	32	35
2015	CA	75th Percentile	65	62	62	67	61	59	56	18	60	32
2004-2014	CA	Count	118	31	68	124	53	72	48	31	39	79
2015	CA	Count	12	7	7	12	7	7	7	7	6	11
2004-2014	CL	Mean	108	63	54	114	70	52	34	21	41	40
2015	CL	Mean	157	110	100	166	112	101	79	51	84	58
2004-2014	CL	Variance	2036	1022	959	2024	1442	993	376	83	448	559
2015	CL	Variance	3120	345	520	3193	720	262	703	657	1003	702
2004-2014	CL	25th Percentile	74	33	26	85	40	25	19	14	24	21
2015	CL	25th Percentile	103	108	86	120	90	91	63	34	57	36
2004-2014	CL	Median	106	62	46	112	63	45	30	20	35	36
2015	CL	Median	158	112	109	175	119	99	74	49	82	52
2004-2014	CL	75th Percentile	129	93	81	131	110	80	46	26	56	57
2015	CL	75th Percentile	209	124	113	208	133	114	97	68	111	79
2004-2014	CL	Count	121	71	101	123	89	103	95	80	87	82
2015	CL	Count	12	9	10	12	8	8	8	8	7	11

PERIOD	PARAMETER	STATISTIC	LOXA132	LOXA133	LOXA134	LOXA135	LOXA136	LOXA137	LOXA138	LOXA139	LOXA140	LOXA141
2004-2014	DCS	Mean	106	37	40	106	48	35	30	26	29	75
2015	DCS	Mean	1	38	40	1	53	38	36	32	36	1
2004-2014	DCS	Variance	1888	248	286	1872	291	188	145	127	154	1789
2015	DCS	Variance		200	237		120	156	147	96	147	
2004-2014	DCS	25th Percentile	124	24	30	124	34	25	21	18	20	47
2015	DCS	25th Percentile	1	37	31	1	46	29	31	28	27	1
2004-2014	DCS	Median	124	36	37	124	47	33	26	24	25	70
2015	DCS	Median	1	39	42	1	50	40	36	30	38	1
2004-2014	DCS	75th Percentile	124	47	47	124	59	41	39	29	37	124
2015	DCS	75th Percentile	1	43	48	1	62	44	46	35	42	1
2004-2014	DCS	Count	97	60	80	98	77	89	78	67	72	82
2015	DCS	Count	12	9	10	12	8	8	8	8	7	11
2004-2014	SIO2	Mean	10	12	9	10	12	10	9	6	10	9
2015	SIO2	Mean	8	10	10	8	10	11	9	7	12	12
2004-2014	SIO2	Variance	28	24	24	25	35	40	40	19	44	20
2015	SIO2	Variance	4	25	22	6	21	35	71	79	66	19
2004-2014	SIO2	25th Percentile	6	9	6	6	8	5	4	3	5	6
2015	SIO2	25th Percentile	7	6	7	6	8	8	2	1	5	8
2004-2014	SIO2	Median	9	11	8	9	11	9	8	4	11	8
2015	SIO2	Median	8	10	10	9	10	12	8	1	14	12
2004-2014	SIO2	75th Percentile	12	15	12	12	16	14	12	8	14	13
2015	SIO2	75th Percentile	9	13	14	11	12	16	16	12	18	13
2004-2014	SIO2	Count	120	31	68	123	54	74	49	32	40	79
2015	SIO2	Count	11	6	6	11	6	6	6	6	5	10

PERIOD	PARAMETER	STATISTIC	LOXA132	LOXA133	LOXA134	LOXA135	LOXA136	LOXA137	LOXA138	LOXA139	LOXA140	LOXA141
2004-2014	SO4	Mean	31.4	7.6	7.5	34.2	11.3	7.0	2.7	0.5	3.3	6.6
2015	SO4	Mean	39.1	15.3	13.5	42.6	19.8	15.6	9.6	1.3	12.2	9.7
2004-2014	SO4	Variance	445.4	105.6	114.6	482.1	238.7	107.5	36.0	0.4	40.8	75.9
2015	SO4	Variance	47.7	158.3	187.1	111.9	258.6	199.5	148.1	0.6	137.3	127.3
2004-2014	SO4	25th Percentile	15.6	1.3	1.1	19.2	1.2	0.9	0.6	0.2	0.8	1.1
2015	SO4	25th Percentile	35.0	5.2	3.9	37.2	9.1	4.1	1.1	0.7	1.5	1.8
2004-2014	SO4	Median	27.0	2.3	2.5	31.2	3.4	1.9	0.8	0.5	1.2	2.6
2015	SO4	Median	40.3	9.0	8.4	40.8	18.8	9.8	3.2	1.2	8.6	4.6
2004-2014	SO4	75th Percentile	44.2	8.6	10.3	43.6	14.6	8.8	1.5	0.6	2.1	7.6
2015	SO4	75th Percentile	43.5	21.7	21.7	46.1	23.7	26.0	14.4	1.6	21.9	15.3
2004-2014	SO4	Count	121	71	101	123	88	103	95	79	87	82
2015	SO4	Count	12	9	10	12	8	8	8	8	7	11
2004-2014	TDEPTH	Mean	111	21	28	112	27	27	22	19	22	51
2015	TDEPTH	Mean	NA	28	33	NA	36	32	33	27	32	125
2004-2014	TDEPTH	Variance	18	2	2	15	2	1	1	1	1	7
2015	TDEPTH	Variance	NA	2	2	NA	2	2	2	1	1	5
2004-2014	TDEPTH	25th Percentile	130	14	18	130	17	18	14	14	15	32
2015	TDEPTH	25th Percentile	NA	20	19	NA	26	22	27	22	26	118
2004-2014	TDEPTH	Median	130	18	25	130	22	24	19	17	18	40
2015	TDEPTH	Median	NA	30	38	NA	41	33	33	25	32	136
2004-2014	TDEPTH	75th Percentile	130	26	33	130	35	33	27	23	27	67
2015	TDEPTH	75th Percentile	NA	35	44	NA	45	41	44	34	37	138
2004-2014	TDEPTH	Count	11	66	89	10	83	94	90	79	82	56
2015	TDEPTH	Count	0	9	10	0	8	8	8	8	7	3
2004-2014	TDOC	Mean	160	112	87	161	123	82	57	20	71	73
2015	TDOC	Mean	161	115	101	177	134	102	56	19	89	52
2004-2014	TDOC	Variance	1765	1582	1543	1774	2570	1775	1251	152	1243	1171
2015	TDOC	Variance	1724	1480	1461	1969	3833	2594	880	15	1686	526
2004-2014	TDOC	25th Percentile	130	81	59	130	86	51	33	13	45	45
2015	TDOC	25th Percentile	140	101	77	145	88	63	32	17	64	35
2004-2014	TDOC	Median	151	110	81	150	110	72	41	16	58	69
2015	TDOC	Median	149	115	86	176	153	104	52	18	76	54
2004-2014	TDOC	75th Percentile	190	126	100	186	160	108	80	23	93	98
2015	TDOC	75th Percentile	187	128	135	209	174	145	66	21	101	59
2004-2014	TDOC	Count	97	23	51	99	41	57	34	24	31	58
2015	TDOC	Count	11	2	8	12	5	8	8	3	4	11

PERIOD	PARAMETER	STATISTIC	LOXA132	LOXA133	LOXA134	LOXA135	LOXA136	LOXA137	LOXA138	LOXA139	LOXA140	LOXA141
2004-2014	TDS	Mean	448	312	264	466	353	256	186	116	225	195
2015	TDS	Mean	541	415	407	573	449	409	326	203	358	250
2004-2014	TDS	Variance	20024	14172	12061	18781	20187	13622	7735	1432	7547	8927
2015	TDS	Variance	12136	5717	8072	13573	6779	7778	17372	5388	21374	10132
2004-2014	TDS	25th Percentile	332	199	178	357	216	160	121	90	163	119
2015	TDS	25th Percentile	453	375	354	471	408	334	234	162	239	181
2004-2014	TDS	Median	438	316	246	454	360	226	169	113	215	175
2015	TDS	Median	528	417	386	592	430	382	264	175	373	203
2004-2014	TDS	75th Percentile	538	417	368	546	460	370	230	149	274	251
2015	TDS	75th Percentile	634	450	464	667	504	482	442	234	496	332
2004-2014	TDS	Count	120	30	68	123	53	72	48	31	40	79
2015	TDS	Count	11	6	6	11	6	6	6	6	5	10
2004-2014	TOC	Mean	26	25	24	26	28	25	24	25	28	20
2015	TOC	Mean	22	24	24	22	22	24	25	35	25	21
2004-2014	TOC	Variance	44	47	40	52	60	33	45	60	51	20
2015	TOC	Variance	29	13	12	31	38	24	134	41	8	4
2004-2014	TOC	25th Percentile	21	20	20	21	24	21	20	19	22	17
2015	TOC	25th Percentile	19	22	22	18	17	23	25	32	24	19
2004-2014	TOC	Median	26	25	24	26	28	25	22	23	26	20
2015	TOC	Median	22	24	25	20	25	25	27	35	25	21
2004-2014	TOC	75th Percentile	30	29	28	30	32	29	26	27	32	24
2015	TOC	75th Percentile	24	26	26	25	27	26	31	39	26	22
2004-2014	TOC	Count	119	30	68	123	53	73	48	31	40	78
2015	TOC	Count	12	7	7	12	7	7	7	7	6	11
2004-2014	DO	Mean	4.0	2.1	3.4	4.3	1.9	3.2	5.1	4.7	4.5	2.2
2015	DO	Mean	4.4	0.8	1.7	4.3	1.1	3.5	4.9	5.3	2.3	1.8
2004-2014	DO	Variance	3.9	1.4	3.9	4.1	2.4	4.0	6.8	5.6	4.8	2.4
2015	DO	Variance	0.7	0.2	0.7	1.1	0.5	0.5	2.4	4.5	2.6	0.9
2004-2014	DO	25th Percentile	2.5	1.0	1.8	2.8	0.8	1.8	3.3	3.0	2.9	0.9
2015	DO	25th Percentile	3.8	0.5	1.3	3.7	0.8	3.5	4.1	4.6	1.5	1.5
2004-2014	DO	Median	3.9	1.8	2.9	4.2	1.5	2.8	4.7	4.3	4.2	1.8
2015	DO	Median	4.3	0.7	1.5	4.1	0.9	3.5	4.7	5.7	2.3	1.6
2004-2014	DO	75th Percentile	5.2	2.9	4.6	5.5	2.6	4.5	6.0	6.1	5.8	3.3
2015	DO	75th Percentile	4.8	1.3	1.8	4.9	1.4	3.9	5.8	6.8	2.8	2.5
2004-2014	DO	Count	117	68	96	120	87	100	92	79	84	81
2015	DO	Count	12	9	10	12	8	8	8	8	7	11

PERIOD	PARAMETER	STATISTIC	LOXA132	LOXA133	LOXA134	LOXA135	LOXA136	LOXA137	LOXA138	LOXA139	LOXA140	LOXA141
2004-2014	OPO4	Mean	0.021	0.019	0.009	0.020	0.010	0.005	0.004	0.004	0.005	0.005
2015	OPO4	Mean	0.004	0.004	0.004	0.004	0.004	0.004	0.003	0.003	0.005	0.006
2004-2014	OPO4	Variance	0.003	0.002	0.001	0.003	0.001	0.000	0.000	0.000	0.000	0.000
2015	OPO4	Variance	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2004-2014	OPO4	25th Percentile	0.004	0.003	0.003	0.003	0.003	0.003	0.003	0.002	0.003	0.002
2015	OPO4	25th Percentile	0.003	0.003	0.003	0.003	0.003	0.004	0.002	0.002	0.003	0.004
2004-2014	OPO4	Median	0.007	0.004	0.003	0.006	0.004	0.003	0.003	0.003	0.003	0.003
2015	OPO4	Median	0.004	0.004	0.004	0.003	0.004	0.005	0.003	0.003	0.005	0.005
2004-2014	OPO4	75th Percentile	0.018	0.009	0.006	0.013	0.005	0.004	0.004	0.003	0.006	0.004
2015	OPO4	75th Percentile	0.004	0.004	0.005	0.005	0.005	0.005	0.004	0.004	0.006	0.008
2004-2014	OPO4	Count	115	30	67	116	52	69	46	30	39	79
2015	OPO4	Count	12	7	7	12	7	7	7	7	6	11
2004-2014	PH	Mean	7.4	6.8	6.9	7.5	6.9	6.8	6.9	6.7	6.9	6.8
2015	PH	Mean	7.5	6.9	6.9	7.1	7.0	7.1	7.2	6.8	7.0	6.8
2004-2014	PH	Variance	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.3	0.2	0.2
2015	PH	Variance	0.0	0.0	0.1	2.4	0.0	0.0	0.0	0.1	0.1	0.0
2004-2014	PH	25th Percentile	7.2	6.6	6.7	7.3	6.7	6.6	6.6	6.4	6.7	6.5
2015	PH	25th Percentile	7.5	6.8	6.9	7.5	7.0	7.0	7.1	6.7	6.8	6.6
2004-2014	PH	Median	7.4	6.8	6.9	7.5	6.9	6.8	6.9	6.7	6.8	6.8
2015	PH	Median	7.5	6.9	6.9	7.6	7.0	7.1	7.2	6.7	7.0	6.8
2004-2014	PH	75th Percentile	7.6	7.0	7.1	7.6	7.1	7.0	7.1	7.1	7.1	7.0
2015	PH	75th Percentile	7.6	7.0	7.0	7.6	7.1	7.1	7.3	6.8	7.2	6.9
2004-2014	PH	Count	120	71	99	123	89	103	95	81	87	82
2015	PH	Count	12	9	10	12	8	8	8	8	7	11
2004-2014	SPCOND	Mean	727	431	364	758	473	344	214	120	254	289
2015	SPCOND	Mean	907	713	619	960	717	636	492	253	523	381
2004-2014	SPCOND	Variance	50225	31577	31133	50654	49647	34799	14220	1864	15326	22771
2015	SPCOND	Variance	40634	20625	23327	44003	15905	18890	46414	12869	57235	23803
2004-2014	SPCOND	25th Percentile	553	285	207	567	278	178	132	88	166	163
2015	SPCOND	25th Percentile	708	662	512	752	623	532	330	165	315	263
2004-2014	SPCOND	Median	729	445	340	751	412	297	191	113	219	262
2015	SPCOND	Median	898	734	596	987	723	590	413	248	512	326
2004-2014	SPCOND	75th Percentile	852	582	492	892	658	478	270	143	317	386
2015	SPCOND	75th Percentile	1105	765	733	1118	772	694	655	331	735	506
2004-2014	SPCOND	Count	122	72	99	123	89	102	94	80	86	82
2015	SPCOND	Count	12	9	10	12	8	8	8	8	7	11

PERIOD	PARAMETER	STATISTIC	LOXA132	LOXA133	LOXA134	LOXA135	LOXA136	LOXA137	LOXA138	LOXA139	LOXA140	LOXA141
2004-2014	TEMP	Mean	25	23	24	25	23	24	24	25	24	23
2015	TEMP	Mean	27	23	24	27	24	24	24	25	23	26
2004-2014	TEMP	Variance	18	19	22	17	20	22	24	24	23	15
2015	TEMP	Variance	15	13	17	14	15	18	24	25	12	15
2004-2014	TEMP	25th Percentile	23	20	22	22	21	21	21	21	21	21
2015	TEMP	25th Percentile	24	21	22	24	21	22	22	22	21	24
2004-2014	TEMP	Median	26	23	25	26	23	25	26	26	25	23
2015	TEMP	Median	29	23	25	28	23	24	25	24	22	26
2004-2014	TEMP	75th Percentile	29	27	28	29	27	28	28	28	28	27
2015	TEMP	75th Percentile	30	26	27	30	27	28	28	29	26	28
2004-2014	TEMP	Count	121	72	101	122	88	102	94	81	86	81
2015	TEMP	Count	12	9	10	12	8	8	8	8	7	11
2004-2014	TN	Mean	1.7	1.5	1.3	1.8	1.6	1.4	1.4	1.4	1.4	1.2
2015	TN	Mean	1.4	1.4	1.4	1.5	1.4	1.5	1.9	2.1	1.4	1.3
2004-2014	TN	Variance	0.5	0.4	0.2	0.4	0.3	0.1	0.2	0.2	0.2	0.1
2015	TN	Variance	0.1	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.1	0.0
2004-2014	TN	25th Percentile	1.3	1.1	1.0	1.3	1.2	1.1	1.1	1.1	1.1	0.9
2015	TN	25th Percentile	1.1	1.3	1.3	1.2	1.3	1.3	1.5	1.9	1.2	1.1
2004-2014	TN	Median	1.6	1.4	1.3	1.7	1.5	1.3	1.3	1.3	1.3	1.1
2015	TN	Median	1.4	1.5	1.4	1.4	1.6	1.5	2.1	2.1	1.4	1.3
2004-2014	TN	75th Percentile	2.0	1.7	1.5	2.0	1.9	1.6	1.6	1.6	1.5	1.3
2015	TN	75th Percentile	1.5	1.5	1.5	1.6	1.7	1.7	2.2	2.3	1.5	1.4
2004-2014	TN	Count	119	30	68	122	53	73	48	31	40	79
2015	TN	Count	12	7	7	12	7	7	7	7	6	11

PERIOD	PARAMETER	STATISTIC	LOXA132	LOXA133	LOXA134	LOXA135	LOXA136	LOXA137	LOXA138	LOXA139	LOXA140	LOXA141
2004-2014	TP	Mean	0.055	0.040	0.016	0.054	0.027	0.013	0.008	0.008	0.012	0.012
2015	TP	Mean	0.021	0.020	0.011	0.020	0.025	0.011	0.010	0.010	0.010	0.022
2004-2014	TP	Variance	0.004	0.003	0.000	0.004	0.001	0.000	0.000	0.000	0.000	0.000
2015	TP	Variance	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001
2004-2014	TP	25th Percentile	0.028	0.017	0.008	0.026	0.014	0.008	0.005	0.005	0.008	0.008
2015	TP	25th Percentile	0.016	0.014	0.008	0.017	0.014	0.009	0.006	0.008	0.007	0.011
2004-2014	TP	Median	0.039	0.023	0.011	0.039	0.018	0.011	0.007	0.007	0.010	0.011
2015	TP	Median	0.019	0.018	0.011	0.018	0.019	0.011	0.009	0.011	0.009	0.015
2004-2014	TP	75th Percentile	0.063	0.031	0.016	0.061	0.027	0.015	0.009	0.009	0.013	0.013
2015	TP	75th Percentile	0.022	0.023	0.014	0.022	0.032	0.013	0.012	0.012	0.013	0.017
2004-2014	TP	Count	120	71	100	124	89	109	95	80	89	83
2015	TP	Count	12	9	10	12	8	8	8	8	7	11
2004-2014	TSS	Mean	7.1	4.9	4.0	6.1	4.5	3.6	3.9	4.0	3.9	4.6
2015	TSS	Mean	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	7.8
2004-2014	TSS	Variance	46.0	5.5	3.2	14.0	7.8	2.2	3.6	2.1	2.3	51.0
2015	TSS	Variance	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.8
2004-2014	TSS	25th Percentile	5.0	4.0	2.5	5.0	2.8	2.0	2.0	2.7	2.5	2.0
2015	TSS	25th Percentile	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
2004-2014	TSS	Median	5.0	5.0	5.0	5.0	5.0	4.5	5.0	5.0	5.0	5.0
2015	TSS	Median	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.3
2004-2014	TSS	75th Percentile	6.6	5.0	5.0	6.9	5.0	5.0	5.0	5.0	5.0	5.0
2015	TSS	75th Percentile	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	8.1
2004-2014	TSS	Count	120	65	89	122	79	97	85	70	77	81
2015	TSS	Count	11	8	9	11	7	7	7	7	6	10

PERIOD	PARAMETER	STATISTIC	LOX10	LOX11	LOX12	LOX13	LOX14	LOX15	LOX16	LOX3	LOX4	LOX5
2004-2014	ALK	Mean	37	13	42	16	44	81	40	12	80	8
2015	ALK	Mean	34	17	49	22	65	97	37	13	129	10
2004-2014	ALK	Variance	227	17	245	21	498	1247	417	56	820	4
2015	ALK	Variance	192	1	388	19	1628	471	129	5	1965	0
2004-2014	ALK	25th Percentile	27	10	30	13	30	51	28	9	60	7
2015	ALK	25th Percentile	24	16	36	18	33	84	30	12	92	9
2004-2014	ALK	Median	33	12	38	15	38	79	34	10	73	8
2015	ALK	Median	37	16	38	21	34	105	32	14	122	10
2004-2014	ALK	75th Percentile	46	15	52	20	52	106	45	13	98	9
2015	ALK	75th Percentile	46	18	61	24	106	109	42	14	178	10
2004-2014	ALK	Count	48	95	124	96	118	119	112	19	78	26
2015	ALK	Count	7	7	11	8	9	10	7	4	8	6
2004-2014	CA	Mean	11	7	12	8	16	24	13	6	26	4
2015	CA	Mean	10	8	14	9	22	28	12	9	42	6
2004-2014	CA	Variance	18	4	18	4	67	119	41	6	77	1
2015	CA	Variance	13	1	29	3	186	36	12	1	169	0
2004-2014	CA	25th Percentile	8	5	9	7	10	14	9	4	19	4
2015	CA	25th Percentile	7	7	10	8	10	25	9	9	34	5
2004-2014	CA	Median	9	6	11	8	13	23	11	5	24	4
2015	CA	Median	10	8	11	9	13	30	11	9	38	6
2004-2014	CA	75th Percentile	13	8	15	9	18	33	15	7	31	5
2015	CA	75th Percentile	13	9	17	10	32	32	14	9	54	6
2004-2014	CA	Count	48	95	124	96	118	118	111	19	79	25
2015	CA	Count	7	7	11	8	9	10	7	4	8	6
2004-2014	CL	Mean	23	21	26	20	35	49	30	23	51	21
2015	CL	Mean	26	23	37	24	44	67	29	32	94	25
2004-2014	CL	Variance	165	59	113	40	536	623	345	64	560	46
2015	CL	Variance	245	16	255	33	566	338	256	135	533	92
2004-2014	CL	25th Percentile	14	15	19	16	20	28	18	17	30	16
2015	CL	25th Percentile	15	21	24	20	23	51	19	27	91	20
2004-2014	CL	Median	19	19	23	19	27	44	25	22	45	21
2015	CL	Median	18	24	29	23	38	74	20	36	103	24
2004-2014	CL	75th Percentile	26	25	30	23	37	71	32	27	68	25
2015	CL	75th Percentile	38	24	49	27	70	78	34	41	109	28
2004-2014	CL	Count	95	115	124	110	120	120	118	64	106	76
2015	CL	Count	7	10	12	10	12	11	11	7	10	8

PERIOD	PARAMETER	STATISTIC	LOX10	LOX11	LOX12	LOX13	LOX14	LOX15	LOX16	LOX3	LOX4	LOX5
2004-2014	DCS	Mean	29	49	81	47	67	91	73	21	36	25
2015	DCS	Mean	29	45	70	45	65	85	58	20	39	25
2004-2014	DCS	Variance	178	193	288	306	327	462	458	99	178	109
2015	DCS	Variance	210	282	796	435	533	597	638	105	186	119
2004-2014	DCS	25th Percentile	20	41	72	36	55	79	63	15	26	19
2015	DCS	25th Percentile	20	30	50	32	47	76	39	17	30	22
2004-2014	DCS	Median	27	49	82	48	69	94	77	20	36	23
2015	DCS	Median	29	44	61	40	68	88	61	21	43	27
2004-2014	DCS	75th Percentile	37	57	92	59	80	106	90	24	45	30
2015	DCS	75th Percentile	42	59	87	57	85	104	79	29	50	33
2004-2014	DCS	Count	81	89	89	87	89	89	88	71	80	75
2015	DCS	Count	11	12	12	11	12	12	12	10	10	10
2004-2014	SIO2	Mean	6	3	6	4	5	8	5	4	8	3
2015	SIO2	Mean	5	6	10	7	6	14	4	2	10	3
2004-2014	SIO2	Variance	15	3	7	4	15	28	10	6	22	5
2015	SIO2	Variance	16	3	13	5	20	9	3	5	22	5
2004-2014	SIO2	25th Percentile	3	2	4	2	2	4	2	3	5	2
2015	SIO2	25th Percentile	2	5	7	6	2	12	3	1	6	2
2004-2014	SIO2	Median	5	3	5	3	3	7	4	3	8	3
2015	SIO2	Median	3	7	8	6	4	15	3	2	9	3
2004-2014	SIO2	75th Percentile	9	4	8	5	7	11	6	5	12	5
2015	SIO2	75th Percentile	6	8	12	8	11	17	5	4	15	5
2004-2014	SIO2	Count	48	94	123	96	117	118	111	19	79	26
2015	SIO2	Count	7	7	11	8	9	10	7	4	8	6

PERIOD	PARAMETER	STATISTIC	LOX10	LOX11	LOX12	LOX13	LOX14	LOX15	LOX16	LOX3	LOX4	LOX5
2004-2014	SO4	Mean	1.1	0.1	0.8	0.1	3.5	11.8	2.2	0.2	3.7	0.1
2015	SO4	Mean	0.8	0.1	1.6	0.1	5.6	16.9	1.2	0.2	10.6	0.1
2004-2014	SO4	Variance	1.6	0.0	1.2	0.0	54.5	110.7	25.1	0.9	38.6	0.0
2015	SO4	Variance	0.4	0.0	7.3		50.9	101.9	2.7	0.0	120.3	
2004-2014	SO4	25th Percentile	0.4	0.1	0.2	0.1	0.5	2.7	0.2	0.1	0.9	0.1
2015	SO4	25th Percentile	0.3	0.1	0.1	0.1	0.5	6.7	0.2	0.1	2.4	0.1
2004-2014	SO4	Median	0.6	0.1	0.5	0.1	1.1	8.0	0.6	0.1	1.5	0.1
2015	SO4	Median	0.5	0.1	0.2	0.1	1.0	20.0	0.3	0.1	3.7	0.1
2004-2014	SO4	75th Percentile	1.5	0.1	1.0	0.1	2.5	18.3	1.8	0.1	3.5	0.1
2015	SO4	75th Percentile	1.4	0.1	1.6	0.1	10.1	22.4	1.2	0.1	18.6	0.1
2004-2014	SO4	Count	96	115	124	110	119	120	117	64	106	76
2015	SO4	Count	7	10	12	10	12	11	11	7	10	8
2004-2014	TDEPTH	Mean	20	33	64	36	54	70	54	14	26	16
2015	TDEPTH	Mean	21	29	49	31	50	54	37	16	30	19
2004-2014	TDEPTH	Variance	1	2	4	3	3	5	4	1	1	1
2015	TDEPTH	Variance	2	4	6	3	7	7	6	1	1	1
2004-2014	TDEPTH	25th Percentile	12	21	51	25	45	56	42	8	18	11
2015	TDEPTH	25th Percentile	7	14	32	20	33	44	17	10	24	12
2004-2014	TDEPTH	Median	18	31	63	36	54	72	55	13	25	16
2015	TDEPTH	Median	21	28	47	35	49	50	37	17	32	23
2004-2014	TDEPTH	75th Percentile	26	45	78	45	65	81	66	18	30	20
2015	TDEPTH	75th Percentile	34	44	72	44	72	71	55	24	38	26
2004-2014	TDEPTH	Count	84	87	90	84	87	90	87	73	82	73
2015	TDEPTH	Count	11	12	12	11	12	12	12	10	10	10
2004-2014	TDOC	Mean	40	12	43	16	43	83	42	13	80	8
2015	TDOC	Mean	31	13	32	16	48	56	30	14	72	9
2004-2014	TDOC	Variance	219	17	274	23	369	1346	472	74	890	4
2015	TDOC	Variance	13	4	81	11	1433	394	59	5	354	3
2004-2014	TDOC	25th Percentile	30	10	30	13	31	50	28	8	58	8
2015	TDOC	25th Percentile	29	12	28	14	28	40	27	13	63	9
2004-2014	TDOC	Median	35	12	40	15	39	80	36	10	73	8
2015	TDOC	Median	31	13	32	16	32	55	30	14	67	10
2004-2014	TDOC	75th Percentile	48	14	53	20	49	106	46	13	98	9
2015	TDOC	75th Percentile	32	14	36	16	57	72	33	14	78	10
2004-2014	TDOC	Count	40	77	102	76	96	97	93	14	58	19
2015	TDOC	Count	2	10	11	11	11	11	11	2	11	4

PERIOD	PARAMETER	STATISTIC	LOX10	LOX11	LOX12	LOX13	LOX14	LOX15	LOX16	LOX3	LOX4	LOX5
2004-2014	TDS	Mean	125	91	124	92	145	225	129	101	235	85
2015	TDS	Mean	119	100	157	94	187	301	118	170	383	112
2004-2014	TDS	Variance	3344	1303	2169	910	6688	10705	4887	701	6255	1071
2015	TDS	Variance	2242	257	3993	303	10234	3402	1383	129	5560	607
2004-2014	TDS	25th Percentile	78	66	86	77	91	138	84	81	181	60
2015	TDS	25th Percentile	82	90	104	84	94	266	91	161	352	110
2004-2014	TDS	Median	115	89	121	90	128	211	110	104	230	89
2015	TDS	Median	94	94	142	88	128	317	98	169	368	123
2004-2014	TDS	75th Percentile	171	109	151	108	163	298	155	120	284	103
2015	TDS	75th Percentile	162	113	198	106	286	328	139	178	448	126
2004-2014	TDS	Count	45	95	124	96	118	119	112	19	78	26
2015	TDS	Count	7	7	11	8	9	10	7	4	8	6
2004-2014	TOC	Mean	17	19	16	18	17	19	16	23	26	21
2015	TOC	Mean	16	22	18	19	16	20	15	41	28	26
2004-2014	TOC	Variance	9	18	11	17	16	14	11	21	39	18
2015	TOC	Variance	2	15	10	21	16	2	3	56	28	18
2004-2014	TOC	25th Percentile	15	16	14	15	14	16	14	19	22	17
2015	TOC	25th Percentile	15	19	15	15	14	19	13	37	25	24
2004-2014	TOC	Median	17	18	16	17	16	19	15	23	25	22
2015	TOC	Median	16	22	19	20	16	20	15	40	26	26
2004-2014	TOC	75th Percentile	18	21	18	20	19	21	17	25	29	25
2015	TOC	75th Percentile	17	25	20	23	17	20	16	45	28	29
2004-2014	TOC	Count	48	94	124	95	115	116	110	18	78	26
2015	TOC	Count	7	7	11	8	9	10	7	4	8	6
2004-2014	DO	Mean	4.4	4.2	4.7	4.6	4.3	4.6	3.0	4.7	3.9	4.8
2015	DO	Mean	5.0	4.7	4.3	4.8	5.3	4.5	3.5	5.6	3.9	6.3
2004-2014	DO	Variance	3.5	4.5	3.4	4.0	3.0	3.6	3.0	3.8	3.9	2.9
2015	DO	Variance	3.6	3.3	3.6	5.9	4.7	7.6	5.8	2.2	2.6	4.4
2004-2014	DO	25th Percentile	3.1	2.5	3.0	3.2	3.1	3.1	1.7	3.2	2.4	3.6
2015	DO	25th Percentile	3.8	3.6	3.3	3.6	4.0	1.9	1.5	4.4	2.8	5.0
2004-2014	DO	Median	4.0	4.0	4.8	4.5	4.4	4.7	2.8	4.2	3.5	4.7
2015	DO	Median	4.2	4.3	4.0	4.5	5.1	5.3	3.4	4.8	3.7	5.8
2004-2014	DO	75th Percentile	5.5	5.7	6.2	6.1	5.5	5.9	4.3	6.2	5.0	6.0
2015	DO	75th Percentile	5.8	4.9	5.4	5.1	6.8	6.8	5.1	6.6	4.8	6.3
2004-2014	DO	Count	91	115	120	109	117	118	116	66	100	74
2015	DO	Count	7	10	12	10	12	11	11	7	10	8

PERIOD	PARAMETER	STATISTIC	LOX10	LOX11	LOX12	LOX13	LOX14	LOX15	LOX16	LOX3	LOX4	LOX5
2004-2014	OPO4	Mean	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
2015	OPO4	Mean	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
2004-2014	OPO4	Variance	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2015	OPO4	Variance			0.000	0.000		0.000				
2004-2014	OPO4	25th Percentile	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
2015	OPO4	25th Percentile	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
2004-2014	OPO4	Median	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
2015	OPO4	Median	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
2004-2014	OPO4	75th Percentile	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.002	0.004	0.002
2015	OPO4	75th Percentile	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
2004-2014	OPO4	Count	48	94	122	95	117	118	111	20	79	25
2015	OPO4	Count	7	7	11	8	9	10	7	4	8	6
2004-2014	PH	Mean	6.6	6.4	6.9	6.4	6.7	7.0	6.5	6.4	6.7	6.3
2015	PH	Mean	6.5	6.6	7.4	6.7	7.0	7.2	6.9	7.1	7.0	6.5
2004-2014	PH	Variance	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.2
2015	PH	Variance	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.6	0.2	0.1
2004-2014	PH	25th Percentile	6.4	6.1	6.6	6.2	6.5	6.8	6.4	6.1	6.5	6.0
2015	PH	25th Percentile	6.4	6.4	7.2	6.5	6.8	7.0	6.6	6.5	6.7	6.2
2004-2014	PH	Median	6.6	6.3	6.8	6.4	6.7	7.1	6.5	6.4	6.7	6.2
2015	PH	Median	6.5	6.6	7.4	6.7	7.0	7.2	7.0	7.5	6.9	6.5
2004-2014	PH	75th Percentile	6.8	6.5	7.1	6.6	6.8	7.3	6.7	6.8	6.9	6.4
2015	PH	75th Percentile	6.7	6.8	7.6	6.9	7.1	7.5	7.2	7.7	7.3	6.8
2004-2014	PH	Count	96	115	122	108	118	119	117	70	105	77
2015	PH	Count	7	10	12	10	12	11	11	7	10	8
2004-2014	SPCOND	Mean	156	113	179	112	224	358	191	121	337	106
2015	SPCOND	Mean	166	134	241	143	297	452	182	166	575	125
2004-2014	SPCOND	Variance	5412	1316	4219	834	17443	27513	11505	1123	20042	702
2015	SPCOND	Variance	6333	448	9406	1011	24697	13433	6130	1529	23807	1133
2004-2014	SPCOND	25th Percentile	104	85	129	97	139	217	128	95	236	86
2015	SPCOND	25th Percentile	105	123	161	120	153	344	132	146	508	107
2004-2014	SPCOND	Median	133	104	168	109	182	331	163	115	293	106
2015	SPCOND	Median	115	134	199	136	260	492	138	180	577	118
2004-2014	SPCOND	75th Percentile	173	133	213	126	242	488	214	138	427	120
2015	SPCOND	75th Percentile	233	148	322	170	459	512	213	193	708	139
2004-2014	SPCOND	Count	93	106	116	101	112	116	113	70	101	76
2015	SPCOND	Count	7	10	12	10	12	11	11	7	10	8

PERIOD	PARAMETER	STATISTIC	LOX10	LOX11	LOX12	LOX13	LOX14	LOX15	LOX16	LOX3	LOX4	LOX5
2004-2014	TEMP	Mean	23	23	24	24	24	24	23	23	23	23
2015	TEMP	Mean	24	25	25	25	25	24	24	25	24	25
2004-2014	TEMP	Variance	26	21	20	21	20	20	18	28	25	28
2015	TEMP	Variance	24	17	13	13	11	13	12	22	12	23
2004-2014	TEMP	25th Percentile	19	20	21	21	21	21	20	21	19	21
2015	TEMP	25th Percentile	22	22	23	23	24	22	22	22	22	23
2004-2014	TEMP	Median	23	23	25	23	24	24	24	25	24	24
2015	TEMP	Median	23	25	26	25	26	25	25	24	25	25
2004-2014	TEMP	75th Percentile	27	27	28	28	28	28	27	28	28	28
2015	TEMP	75th Percentile	28	28	27	27	28	27	27	27	26	29
2004-2014	TEMP	Count	98	120	126	113	121	123	121	73	109	80
2015	TEMP	Count	7	10	12	10	12	11	11	7	10	8
2004-2014	TN	Mean	1.0	1.1	1.0	1.1	0.9	1.2	0.9	1.5	1.2	1.5
2015	TN	Mean	0.9	1.2	1.0	1.1	0.9	1.3	0.8	2.6	1.5	1.8
2004-2014	TN	Variance	0.0	0.1	0.2	0.1	0.1	0.0	0.0	0.1	0.1	0.1
2015	TN	Variance	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1
2004-2014	TN	25th Percentile	0.9	0.9	0.8	0.9	0.8	1.1	0.7	1.3	1.0	1.2
2015	TN	25th Percentile	0.8	1.0	0.8	0.9	0.7	1.2	0.7	2.5	1.2	1.6
2004-2014	TN	Median	1.0	1.1	0.9	1.1	0.9	1.2	0.8	1.5	1.2	1.4
2015	TN	Median	0.9	1.1	1.0	1.1	0.8	1.3	0.8	2.7	1.3	1.7
2004-2014	TN	75th Percentile	1.2	1.2	1.1	1.3	1.0	1.4	0.9	1.6	1.4	1.6
2015	TN	75th Percentile	1.0	1.3	1.2	1.3	1.0	1.3	0.8	2.8	1.7	1.9
2004-2014	TN	Count	47	95	124	95	117	117	112	18	79	26
2015	TN	Count	5	6	10	7	7	8	7	3	6	4

PERIOD	PARAMETER	STATISTIC	LOX10	LOX11	LOX12	LOX13	LOX14	LOX15	LOX16	LOX3	LOX4	LOX5
2004-2014	TP	Mean	0.008	0.007	0.008	0.007	0.007	0.007	0.008	0.009	0.010	0.008
2015	TP	Mean	0.007	0.008	0.009	0.007	0.009	0.006	0.008	0.009	0.010	0.009
2004-2014	TP	Variance	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2015	TP	Variance	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
2004-2014	TP	25th Percentile	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.007	0.007	0.006
2015	TP	25th Percentile	0.005	0.006	0.006	0.006	0.005	0.006	0.008	0.008	0.006	0.008
2004-2014	TP	Median	0.007	0.007	0.007	0.007	0.006	0.007	0.007	0.008	0.009	0.007
2015	TP	Median	0.007	0.007	0.007	0.007	0.007	0.006	0.008	0.009	0.009	0.010
2004-2014	TP	75th Percentile	0.009	0.008	0.008	0.008	0.008	0.008	0.009	0.009	0.011	0.009
2015	TP	75th Percentile	0.008	0.009	0.011	0.009	0.010	0.007	0.009	0.011	0.010	0.011
2004-2014	TP	Count	96	119	124	111	120	121	119	71	105	79
2015	TP	Count	7	10	12	10	12	11	11	7	10	8
2004-2014	TSS	Mean	3.5	3.2	4.0	3.1	3.0	3.0	3.0	3.2	3.4	4.5
2015	TSS	Mean	4.7	4.3	5.1	4.5	4.7	4.8	4.3	4.5	4.5	5.0
2004-2014	TSS	Variance	7.8	0.9	65.8	0.7	0.1	0.0	0.0	0.5	3.7	25.2
2015	TSS	Variance	2.6	2.6	3.1	2.6	2.5	2.4	2.6	3.0	2.6	2.4
2004-2014	TSS	25th Percentile	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
2015	TSS	25th Percentile	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.8
2004-2014	TSS	Median	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
2015	TSS	Median	6.0	3.0	6.0	4.5	6.0	6.0	3.0	4.5	4.5	6.0
2004-2014	TSS	75th Percentile	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
2015	TSS	75th Percentile	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
2004-2014	TSS	Count	48	95	124	96	118	119	112	19	79	26
2015	TSS	Count	7	7	11	8	9	10	7	4	8	6

PERIOD	PARAMETER	STATISTIC	LOX6	LOX7	LOX8	LOX9
2004-2014	ALK	Mean	51	14	11	15
2015	ALK	Mean	84	12	11	15
2004-2014	ALK	Variance	482	48	12	20
2015	ALK	Variance	4076	10	4	2
2004-2014	ALK	25th Percentile	34	10	8	12
2015	ALK	25th Percentile	33	10	9	14
2004-2014	ALK	Median	46	12	10	14
2015	ALK	Median	37	11	10	14
2004-2014	ALK	75th Percentile	62	14	12	16
2015	ALK	75th Percentile	145	14	12	16
2004-2014	ALK	Count	98	104	110	55
2015	ALK	Count	7	9	9	7
2004-2014	CA	Mean	18	6	6	5
2015	CA	Mean	27	7	5	5
2004-2014	CA	Variance	62	3	2	2
2015	CA	Variance	374	2	0	0
2004-2014	CA	25th Percentile	12	5	4	4
2015	CA	25th Percentile	10	6	5	5
2004-2014	CA	Median	16	6	5	5
2015	CA	Median	16	7	5	5
2004-2014	CA	75th Percentile	22	7	6	6
2015	CA	75th Percentile	46	7	5	6
2004-2014	CA	Count	98	104	110	55
2015	CA	Count	7	9	9	7
2004-2014	CL	Mean	39	22	22	22
2015	CL	Mean	50	20	22	19
2004-2014	CL	Variance	489	64	71	55
2015	CL	Variance	1580	11	51	28
2004-2014	CL	25th Percentile	21	16	16	16
2015	CL	25th Percentile	22	18	17	15
2004-2014	CL	Median	36	20	21	22
2015	CL	Median	29	19	19	17
2004-2014	CL	75th Percentile	50	27	26	28
2015	CL	75th Percentile	88	22	24	20
2004-2014	CL	Count	111	115	118	95
2015	CL	Count	9	10	10	8

PERIOD	PARAMETER	STATISTIC	LOX6	LOX7	LOX8	LOX9
2004-2014	DCS	Mean	46	40	41	30
2015	DCS	Mean	40	41	39	33
2004-2014	DCS	Variance	237	159	131	141
2015	DCS	Variance	457	178	151	130
2004-2014	DCS	25th Percentile	35	34	34	24
2015	DCS	25th Percentile	25	31	33	27
2004-2014	DCS	Median	46	40	42	28
2015	DCS	Median	43	44	40	39
2004-2014	DCS	75th Percentile	56	47	48	36
2015	DCS	75th Percentile	59	54	48	42
2004-2014	DCS	Count	85	92	92	81
2015	DCS	Count	12	11	12	10
2004-2014	SIO2	Mean	7	5	4	3
2015	SIO2	Mean	11	7	4	3
2004-2014	SIO2	Variance	29	5	3	3
2015	SIO2	Variance	71	8	1	4
2004-2014	SIO2	25th Percentile	3	4	3	2
2015	SIO2	25th Percentile	3	5	4	1
2004-2014	SIO2	Median	6	5	4	3
2015	SIO2	Median	17	5	4	2
2004-2014	SIO2	75th Percentile	11	6	5	5
2015	SIO2	75th Percentile	18	10	5	5
2004-2014	SIO2	Count	97	103	109	55
2015	SIO2	Count	7	9	9	7

PERIOD	PARAMETER	STATISTIC	LOX6	LOX7	LOX8	LOX9
2004-2014	SO4	Mean	3.6	0.2	0.1	0.1
2015	SO4	Mean	6.4	0.1	0.1	0.1
2004-2014	SO4	Variance	82.6	0.0	0.0	0.0
2015	SO4	Variance	75.3	0.0		
2004-2014	SO4	25th Percentile	0.5	0.1	0.1	0.1
2015	SO4	25th Percentile	0.1	0.1	0.1	0.1
2004-2014	SO4	Median	1.1	0.1	0.1	0.1
2015	SO4	Median	0.3	0.1	0.1	0.1
2004-2014	SO4	75th Percentile	3.2	0.1	0.1	0.1
2015	SO4	75th Percentile	14.8	0.1	0.1	0.1
2004-2014	SO4	Count	110	115	119	95
2015	SO4	Count	9	10	10	8
2004-2014	TDEPTH	Mean	35	31	32	20
2015	TDEPTH	Mean	30	32	28	25
2004-2014	TDEPTH	Variance	2	1	1	1
2015	TDEPTH	Variance	4	2	2	1
2004-2014	TDEPTH	25th Percentile	27	23	26	14
2015	TDEPTH	25th Percentile	15	23	22	19
2004-2014	TDEPTH	Median	34	32	32	19
2015	TDEPTH	Median	31	32	30	28
2004-2014	TDEPTH	75th Percentile	46	38	38	25
2015	TDEPTH	75th Percentile	53	45	38	35
2004-2014	TDEPTH	Count	86	87	88	79
2015	TDEPTH	Count	12	11	12	10
2004-2014	TDOC	Mean	55	14	11	16
2015	TDOC	Mean	40	11	11	13
2004-2014	TDOC	Variance	509	58	14	23
2015	TDOC	Variance	270	2	2	4
2004-2014	TDOC	25th Percentile	35	10	8	12
2015	TDOC	25th Percentile	31	11	10	12
2004-2014	TDOC	Median	51	12	10	15
2015	TDOC	Median	39	12	11	14
2004-2014	TDOC	75th Percentile	65	15	12	17
2015	TDOC	75th Percentile	42	12	12	15
2004-2014	TDOC	Count	77	82	88	42
2015	TDOC	Count	11	12	12	7

PERIOD	PARAMETER	STATISTIC	LOX6	LOX7	LOX8	LOX9
2004-2014	TDS	Mean	175	101	97	93
2015	TDS	Mean	237	106	95	86
2004-2014	TDS	Variance	6573	1398	1358	1243
2015	TDS	Variance	26893	242	698	285
2004-2014	TDS	25th Percentile	112	74	74	75
2015	TDS	25th Percentile	95	102	86	77
2004-2014	TDS	Median	166	98	96	92
2015	TDS	Median	164	106	102	94
2004-2014	TDS	75th Percentile	223	125	119	110
2015	TDS	75th Percentile	400	116	110	98
2004-2014	TDS	Count	98	102	108	53
2015	TDS	Count	7	9	9	7
2004-2014	TOC	Mean	19	22	22	18
2015	TOC	Mean	21	23	21	20
2004-2014	TOC	Variance	24	26	25	12
2015	TOC	Variance	26	9	11	6
2004-2014	TOC	25th Percentile	15	19	18	16
2015	TOC	25th Percentile	17	21	19	18
2004-2014	TOC	Median	18	22	21	18
2015	TOC	Median	20	23	20	19
2004-2014	TOC	75th Percentile	22	25	25	20
2015	TOC	75th Percentile	24	27	22	22
2004-2014	TOC	Count	96	104	110	55
2015	TOC	Count	7	9	9	7
2004-2014	DO	Mean	4.1	4.7	4.5	4.5
2015	DO	Mean	4.5	4.5	5.0	5.7
2004-2014	DO	Variance	3.9	4.7	4.5	3.5
2015	DO	Variance	3.1	2.1	2.1	4.7
2004-2014	DO	25th Percentile	2.5	3.0	2.9	3.1
2015	DO	25th Percentile	4.0	3.9	4.0	4.4
2004-2014	DO	Median	4.1	4.5	4.3	4.1
2015	DO	Median	4.2	4.4	4.9	5.1
2004-2014	DO	75th Percentile	5.2	6.0	6.0	5.5
2015	DO	75th Percentile	4.5	5.3	5.8	6.5
2004-2014	DO	Count	110	112	114	92
2015	DO	Count	9	10	10	8

PERIOD	PARAMETER	STATISTIC	LOX6	LOX7	LOX8	LOX9
2004-2014	OPO4	Mean	0.003	0.003	0.003	0.003
2015	OPO4	Mean	0.002	0.002	0.002	0.002
2004-2014	OPO4	Variance	0.000	0.000	0.000	0.000
2015	OPO4	Variance		0.000		
2004-2014	OPO4	25th Percentile	0.002	0.002	0.002	0.002
2015	OPO4	25th Percentile	0.002	0.002	0.002	0.002
2004-2014	OPO4	Median	0.002	0.002	0.002	0.002
2015	OPO4	Median	0.002	0.002	0.002	0.002
2004-2014	OPO4	75th Percentile	0.004	0.004	0.004	0.002
2015	OPO4	75th Percentile	0.002	0.002	0.002	0.002
2004-2014	OPO4	Count	96	103	109	53
2015	OPO4	Count	7	9	9	7
2004-2014	PH	Mean	6.9	6.3	6.2	6.3
2015	PH	Mean	6.7	6.6	6.4	6.5
2004-2014	PH	Variance	0.1	0.1	0.1	0.1
2015	PH	Variance	0.1	0.2	0.1	0.1
2004-2014	PH	25th Percentile	6.6	6.1	6.0	6.1
2015	PH	25th Percentile	6.6	6.3	6.1	6.3
2004-2014	PH	Median	6.8	6.3	6.2	6.3
2015	PH	Median	6.8	6.5	6.5	6.4
2004-2014	PH	75th Percentile	7.1	6.5	6.4	6.5
2015	PH	75th Percentile	6.8	6.9	6.6	6.6
2004-2014	PH	Count	111	116	118	96
2015	PH	Count	9	10	10	8
2004-2014	SPCOND	Mean	246	119	114	117
2015	SPCOND	Mean	326	115	113	109
2004-2014	SPCOND	Variance	12835	1464	1477	1047
2015	SPCOND	Variance	65316	288	722	337
2004-2014	SPCOND	25th Percentile	150	93	89	98
2015	SPCOND	25th Percentile	143	101	96	99
2004-2014	SPCOND	Median	232	109	107	115
2015	SPCOND	Median	178	110	104	103
2004-2014	SPCOND	75th Percentile	305	136	135	136
2015	SPCOND	75th Percentile	586	128	118	111
2004-2014	SPCOND	Count	107	112	113	94
2015	SPCOND	Count	9	10	10	8

PERIOD	PARAMETER	STATISTIC	LOX6	LOX7	LOX8	LOX9
2004-2014	TEMP	Mean	23	24	24	24
2015	TEMP	Mean	24	25	25	25
2004-2014	TEMP	Variance	23	23	23	26
2015	TEMP	Variance	19	14	12	18
2004-2014	TEMP	25th Percentile	19	20	20	20
2015	TEMP	25th Percentile	21	23	24	23
2004-2014	TEMP	Median	23	24	24	24
2015	TEMP	Median	24	25	27	25
2004-2014	TEMP	75th Percentile	27	28	28	28
2015	TEMP	75th Percentile	27	27	28	28
2004-2014	TEMP	Count	115	121	123	100
2015	TEMP	Count	9	10	10	8
2004-2014	TN	Mean	1.2	1.3	1.3	1.3
2015	TN	Mean	1.3	1.3	1.3	1.4
2004-2014	TN	Variance	0.2	0.1	0.1	0.1
2015	TN	Variance	0.3	0.0	0.0	0.1
2004-2014	TN	25th Percentile	1.0	1.1	1.1	1.1
2015	TN	25th Percentile	1.0	1.2	1.1	1.2
2004-2014	TN	Median	1.2	1.2	1.3	1.2
2015	TN	Median	1.2	1.3	1.3	1.3
2004-2014	TN	75th Percentile	1.3	1.3	1.5	1.4
2015	TN	75th Percentile	1.4	1.3	1.5	1.4
2004-2014	TN	Count	98	104	110	55
2015	TN	Count	6	7	7	5

PERIOD	PARAMETER	STATISTIC	LOX6	LOX7	LOX8	LOX9
2004-2014	TP	Mean	0.007	0.008	0.010	0.007
2015	TP	Mean	0.007	0.008	0.009	0.008
2004-2014	TP	Variance	0.000	0.000	0.000	0.000
2015	TP	Variance	0.000	0.000	0.000	0.000
2004-2014	TP	25th Percentile	0.005	0.006	0.008	0.006
2015	TP	25th Percentile	0.005	0.007	0.007	0.007
2004-2014	TP	Median	0.006	0.008	0.009	0.007
2015	TP	Median	0.006	0.008	0.009	0.008
2004-2014	TP	75th Percentile	0.007	0.009	0.010	0.008
2015	TP	75th Percentile	0.008	0.009	0.012	0.009
2004-2014	TP	Count	112	118	120	98
2015	TP	Count	9	10	10	8
2004-2014	TSS	Mean	3.0	3.2	3.2	3.1
2015	TSS	Mean	4.7	4.7	4.7	4.7
2004-2014	TSS	Variance	0.1	3.8	2.5	0.7
2015	TSS	Variance	2.6	2.5	2.5	2.6
2004-2014	TSS	25th Percentile	3.0	3.0	3.0	3.0
2015	TSS	25th Percentile	3.0	3.0	3.0	3.0
2004-2014	TSS	Median	3.0	3.0	3.0	3.0
2015	TSS	Median	6.0	6.0	6.0	6.0
2004-2014	TSS	75th Percentile	3.0	3.0	3.0	3.0
2015	TSS	75th Percentile	6.0	6.0	6.0	6.0
2004-2014	TSS	Count	98	104	110	55
2015	TSS	Count	7	9	9	7

APPENDIX B

Table B-1. EVPA and LOXA stations classified into zones for analyses.

Canal	LOXA104, LOXA115, LOXA129, LOXA132, LOXA135
Perimeter (<2.5 km; <1.6 miles)	LOX4, LOX6, LOX10, LOX14, LOX15, LOX16, LOXA101, LOXA102, LOXA103, LOXA105, LOXA106, LOXA107, LOXA109, LOXA112, LOXA116, LOXA117, LOXA118, LOXA122, LOXA124, LOXA126, LOXA130, LOXA131, LOXA133, LOXA134, LOXA136, LOXA137, LOXA138, LOXA140
Transition (2.5 - 4.5 km; 1.6 - 2.8 miles)	LOX12, LOXA108, LOXA110, LOXA111, LOXA113, LOXA114, LOXA119, LOXA127, LOXA139
Interior(>4.5 km;> 2.8 miles)	LOX3, LOX5, LOX7, LOX8, LOX9, LOX11, LOX13, LOXA120, LOXA128